patient education

AMERICAN UNIVERSITY OF BEIRUT MEDICAL CENTER
المركز الطبي في الجامعة الأميركية في بيروت

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LUNG CANCER

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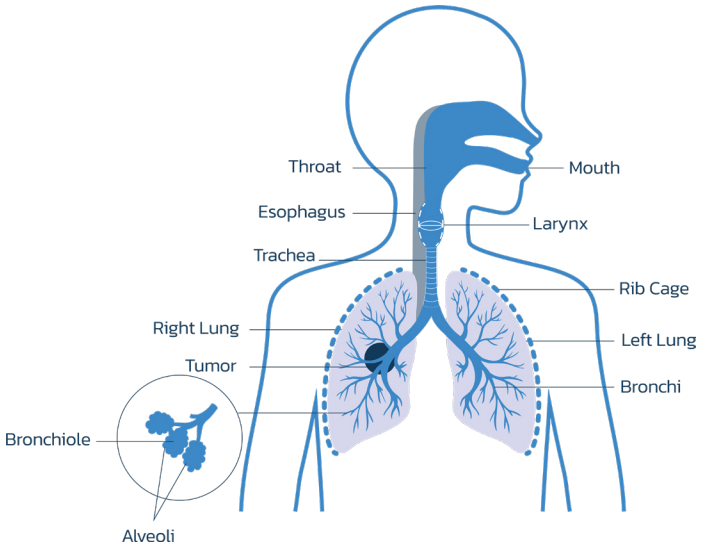
This lung cancer guide provides an overview of lung cancer, how it starts, its risk factors, symptoms, diagnosis, and treatment options.

Knowing more about the disease can help you:

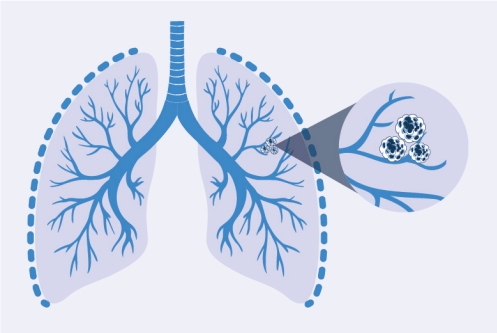
- Cope better
- Take more informed decisions
- Make the course of treatment as manageable as possible

What are the lungs?

- The lungs, located in the chest, are the main organs of the respiratory system. They deliver oxygen to your body and take out the carbon dioxide.
- You have a pair of spongy lungs that are not identical. The left lung has two lobes, while the right one has three.
- Each lung is covered by a membrane called the pleura. This membrane protects the lungs and helps them rub safely against the chest wall during breathing.
- When you breathe, air passes down from your nose or mouth to the trachea (windpipe). The trachea splits into two bronchi (main passages into the lungs) that branch out into smaller passages called bronchioles and then small air sacs (the alveoli). In the alveoli, oxygen is absorbed into the blood and then transported around the body. When you breathe out, the alveoli contract to move out carbon dioxide from the blood out of the body through the nose.



What is lung cancer?



- Lung cancer starts when cells in the lungs become abnormal and begin to grow and multiply uncontrollably forming a tumor (mass).
- It can form in any tissue of the lungs. It mostly forms in the walls of the bronchi, bronchioles, or alveoli.
- It starts as a small mass called nodule.
- There are two main types of lung cancer:
  - **Non-small cell lung cancer:** It is the most common type. It starts in epithelial cells (cells that line the surface of the lungs) and includes three main types:
    - **Adenocarcinoma:** starts in the cells lining the alveoli and secrete mucus.
    - **Squamous cell carcinoma:** starts in the cells lining the lungs' airways, mostly near the main bronchi.
    - **Large cell carcinoma:** can start in any part of the lungs. It is the least common type.
  - **Small cell lung cancer:** It is the most aggressive form of lung cancer and occurs mostly in heavy smokers. It starts in the small cells in the bronchi.
- Cancer cells may spread through the lymph vessels or blood to other areas. This condition is known as metastasis. Lung cancer often spreads first to lymph nodes in the lungs and then to lymph nodes in the center of the chest. If not treated, the tumor can also spread to other tissues in the lungs, then to the bones, brain, liver, and adrenal glands.
- Smoking is the biggest risk factor for lung cancer. Most cases develop as a result of tobacco smoking.
- In Lebanon, lung cancer cases are increasing due to tobacco smoking. It is the third most common cancer in men and the fourth most common cancer in women (Shamseddine et al., Population Health Metrics 2014, 12:4).
- Chances of treatment and cure improve greatly when cancerous nodules are found while still small in size. Screening is essential to detect lung cancer as early as possible and secure the best chances of cure.

What is a nodule?

- A nodule is a small round mass of tissue (less than 3 cm).
- It can be caused by infections, scar tissue, cancer, or other conditions.
- It looks as a small spot or abnormality on a computed tomography (CT) scan. It is common to discover nodules when performing a low dose computed tomography (LDCT) scan.
- Nodules may be benign (non-cancerous). Not all nodules become cancerous with time.
- Cancerous nodules grow as time passes and are usually larger than non-cancerous ones.
- The doctor evaluates nodules for specific features that might help detect if they are cancerous or not. These features include edges, shape, size, growth rate, density, etc.

What causes lung cancer?

Smoking is the leading cause of lung cancer. All types of tobacco smoking (cigarettes, narjileh, cigar, or pipe) increase lung cancer risk. In addition, they cause diseases and cancers in other areas of your body.

There are no known safe levels of tobacco use. Smoking low tar or low nicotine cigarettes does not lower the risk of lung cancer. You are likely to inhale a similar amount of toxic chemicals as in a regular cigarette. E-cigarettes, known as electronic cigarettes, also have damaging effects on your health.

- Among thousands of harmful chemicals in tobacco about 70 are known to cause cancer.
- Your risk increases the younger you were when you first started smoking, the higher the amount of tobacco/cigarettes you smoke per day, and the higher the number of smoking years.
- Smokers are **20 times** more at risk of developing lung cancer than non-smokers.

Please refer to the "Tobacco and Cancer" handout for more information.

Healthy Lung

Smokers Lung

Exposure to second-hand smoke also causes lung cancer. Passive smokers inhale as many toxic substances as smokers and are also at risk of developing lung cancer. The more exposed you are to secondhand smoke the higher your risk. Living with a smoker increases the chance of developing lung cancer remarkably **(by 30%)**. Former smokers are especially affected by second-hand smoke even if they have quit for several years.

Several other factors can also increase your risk for developing lung cancer. They include:

- **Increasing age** (more common after the age of 50)
- **Family history of lung cancer** in close blood relatives, such as a parent or a sibling (the risk is higher if the relative was affected before the age of 50, or if more than one relative was affected)
- **Exposure to environmental hazards,** such as radioactive radon gas (in the air, soil, and water), phosphate fertilizers, asbestos (material used in building insulation), arsenic, beryllium, cadmium, nickel, coal smoke, silica, air pollution, or diesel fumes (the risk is even higher if you are exposed to these agents and are also a smoker)
- **Exposure to radiation therapy to the chest** (especially if you are also a smoker)
- **History of previous lung cancer or smoking-related cancers,** such as mouth, throat, or bladder cancer
- **History of chemotherapy treatment for Hodgkin lymphoma** (due to certain medications)
- **Personal or family history of lung diseases or infections,** such as chronic obstructive pulmonary disease (COPD), pulmonary fibrosis, tuberculosis
- **History of auto-immune connective tissue disease,** such as scleroderma
- **Infection with Human Immunodeficiency Virus** (HIV)
- **Genetic susceptibility** (carrying genes that are less able to process toxic substances that harm the lungs)

If you are considering quitting smoking and are looking for help, you can consult the Smoking Cessation Program at our Medical Center to help you quit.
Please call 01 - 350000 ext. 8030.

What are the symptoms of lung cancer?

Lung cancer usually does not show any signs or symptoms in its early stages. Symptoms usually start appearing when the disease is more advanced or has spread to other parts of the body. Having a screening test for lung cancer before symptoms appear is essential and can save your life. Lung cancer can sometimes be found unintentionally when an imaging test, such as an X-ray, is done for a different reason. **Please refer to the "Screening for Lung Cancer" handout for more information.**

Symptoms you may experience include the following:

- Persistent strong worsening cough
- Changes in a chronic cough or "smoker's cough" (such as coughing up more mucus)
- Bloody or rust colored sputum when coughing
- Shortness of breath or difficulty breathing
- New onset of whistling or wheezing sound when breathing
- Pain or discomfort in the chest, shoulder, or back that worsens with breathing, coughing, or laughing
- Recurrent chest infections such as pneumonia or bronchitis
- Pain when swallowing
- Swelling in the face and/or neck
- Voice changes (hoarseness or high pitched sound)
- Weakness or fatigue
- Unexplained weight loss and loss of appetite
- Unexplained frequent episodes of fever
- Body pain
- Finger clubbing (the ends of fingers become larger or rounded)

Symptoms you may experience in more advanced stages of the disease include:

- Bone pain or fractures in the back or hips
- Neurologic changes (headache, weakness or numbness of your arm or leg, facial/eye droop or numbness, balance problems, or seizures)
- Jaundice (yellow skin and eyes)
- Lumps under the skin (such as in the neck or above the collarbones, bones that connect the shoulder and neck)

Consult your doctor if you experience any of the above symptoms.

These symptoms can be caused by other health problems, and do not mean you have lung cancer. They are important symptoms however that need to be checked by your doctor.

How is lung cancer diagnosed?

- **Low Dose Computed Tomography scan (LDCT):** It is a type of X-ray imaging test that creates detailed three-dimensional images of the lungs from different angles. The LDCT scan uses a much lower dose of radiation than the one used in standard chest CT scan. It is common for an LDCT scan to show nodules or other abnormalities. Your doctor will request more tests to evaluate suspicious nodules.

- **Physical exam:** Your doctor will review your medical history to check for possible risk factors, as well as your family history. The doctor will fully examine your body for any signs of disease including lumps or anything that seems unusual.
- **Blood test:** Your doctor will order blood tests to get more information regarding your condition.

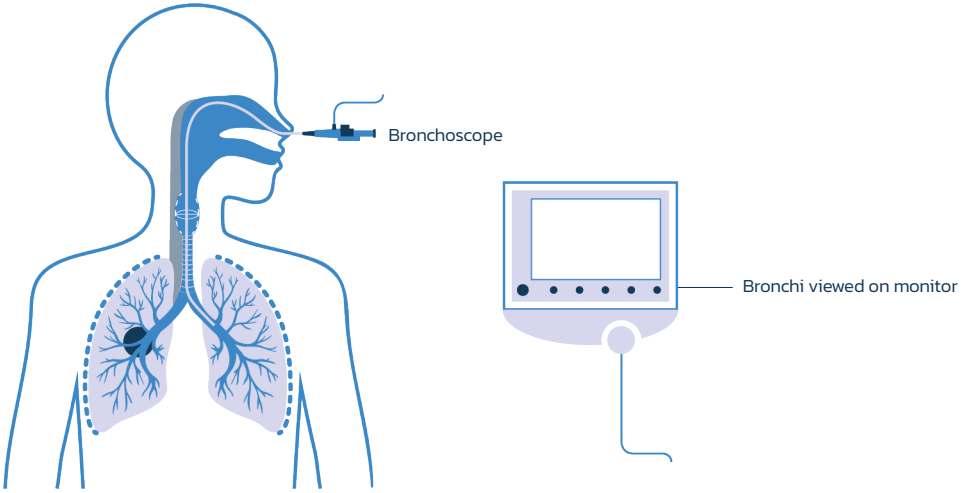
Based on the results, your doctor might order other tests or procedures to confirm the diagnosis:

- **Chest X-ray**: It is an imaging test that produces images of the structures inside the chest.
- **Computed tomography (CT) scan:** It helps better evaluate small lesions or nodules and find out the extent of local disease (size, shape, and location of the tumor). It helps find out if lymph nodes are enlarged and if the disease has spread outside the lungs to other body parts. **Please refer to the "Computed Tomography Scan" handout for more information.**
- **Magnetic resonance imaging (MRI):** It is an imaging test that uses radio waves and magnetic field to take detailed images of areas inside the body and check the extent of disease. **Please refer to the "Magnetic Resonance Imaging" handout for more information.**

- **Positron emission tomography and computed tomography (PET/CT):** It is an imaging test with a rotating scanner that produces very detailed images of areas inside the body. It uses a radioactive tracer absorbed by cancerous cells to locate small areas of the disease all over the body. This helps better identify if abnormal areas on X-ray and CT scan are cancerous. PET/CT helps find out if disease has spread to nearby lymph nodes or other areas, such as liver, bones, or adrenal glands. It also helps your doctor determine if surgery is possible. **Please refer to the "Positron Emission Tomography and Computed Tomography (PET/CT)" handout for more information.**

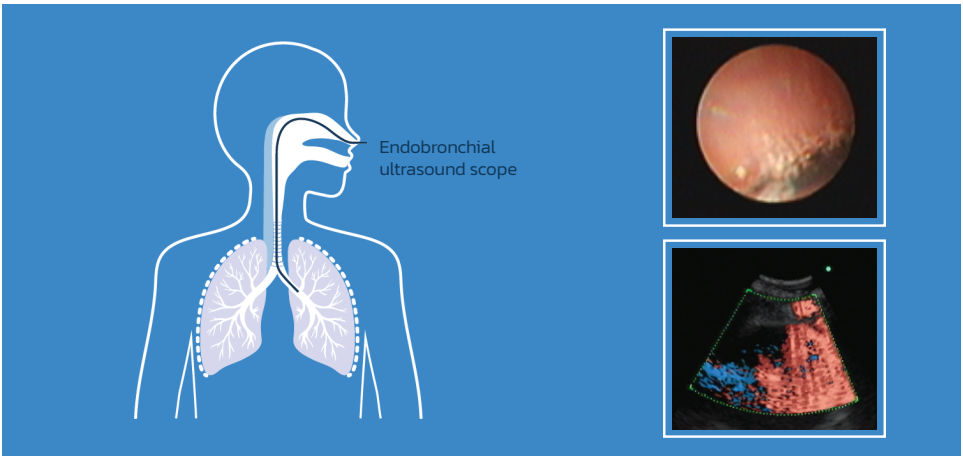
If your imaging tests suggest lung cancer, your doctor might order one or more of the following procedures to examine tissue or fluid from around the lungs:

- **Lung biopsy:** The doctor removes a small sample of lung tissue to be studied under a microscope to check for cancer. The biopsy can be done through different ways depending on the location of the mass.
  - **Bronchoscopy:** It is done to look directly into your lungs and take a sample of tissue or cells for biopsy. Your doctor inserts a bronchoscope (flexible tube with a light source and a video camera) through your nose or mouth down the trachea and lungs. **Please refer to the "Bronchoscopy" handout for more information.**



- **Endobronchial ultrasound (EBUS):** It is a minimally invasive procedure done to take tissue samples from lymph nodes or masses in your chest. The doctor inserts a special endoscope, equipped with both a camera and an ultrasound device on its tip, through your mouth. **Please refer to the "Endobronchial Ultrasound" handout for more information.**
- **Image-guided biopsy:** It is done if the mass cannot be reached through bronchoscopy. The doctor takes tissue samples from the suspicious area under the guidance of imaging, either ultrasound or CT scan. The doctor either uses a very thin needle to take small samples of tissue or fluid (procedure called fine needle aspiration) or uses a larger needle to take larger samples (procedure called core needle biopsy).
- **Thoracoscopy:** It is done to look directly into your chest cavity and take a sample of tissue for biopsy. Your doctor inserts a thoracoscope (thin flexible tube with a light source and a video camera) through a small cut in the chest wall between the ribs. This procedure is done under general anesthesia. It helps check for any abnormality in the pleural cavity, chest, or lymph nodes.
- **Thoracotomy:** It is done if certain areas cannot be reached through thoracoscopy. The doctor makes a larger cut usually on the right or left side of the chest wall between the ribs. He/she opens the chest to examine the lungs directly and take a sample of tissue for testing. This procedure is done under general anesthesia.
- **Mediastinoscopy:** It is done to look directly into your mediastinum (area behind your breastbone and between the lungs) and take samples of tissue from lymph nodes in the chest. The doctor inserts a mediastinoscope (thin flexible tube with a light source and a video camera) through a small cut in the middle of the chest under the breastbone. This procedure is done under general anesthesia.

- **Thoracentesis:** It is a procedure done to remove a sample of fluid from the pleural cavity (space between the lungs and the lining of the chest wall) to check for the presence of cancer cells. Your doctor inserts a needle into the pleural cavity between the ribs to collect the fluid. This procedure is only done if there is a pleural effusion (collection of fluid at a larger volume than usual) in the pleural cavity.



Knowing that you have lung cancer can be overwhelming. You might need to know a lot of information. It is helpful to prepare for your doctor's appointments.

- Write down the symptoms you are having, their start date, frequency, severity, and what activities/medications increase/decrease these symptoms.
- Write down key personal information that might be relevant, such as recent life changes, medical history of a disease, previous diagnosis of lung disease, and any relevant family history.
- List all the medications you are taking.
- Gather all your medical records. If you have any imaging or laboratory tests done at a different medical center, bring all the results with you to your appointment.
- Write down questions you would want to ask your doctor about:
  - When will the results be ready?
  - Will I need any additional testing?
  - Will I benefit if I quit smoking now?
  - What is causing my symptoms? How can they be relieved?
  - Where is the disease located exactly? At which stage is my lung cancer?
  - When is my next follow-up visit?
  - What are my treatment options and their side effects?
  - When do I need to start treatment? How long will it last?
  - Where will I receive treatment? Will I be able to go back home or do I have to stay at the Medical Center?
  - Will treatment affect my daily life? When would I be able to practice normal activities?
  - How often will I need checkups after treatment?
  - What can I do to stop my cancer from recurring?
- Have a relative or close friend accompany you during appointments to help you remember the questions you want to ask and the discussion.

What are the stages of lung cancer?

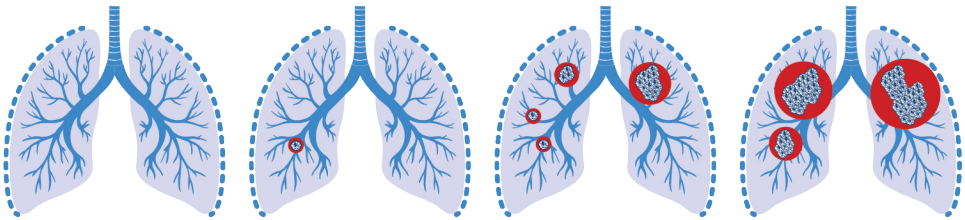
Knowing the stage of lung cancer helps your doctor decide which treatment is better for you. The doctor will determine the stage based on the results of the tests that you did.

To stage **non-small cell lung cancer,** your doctor most commonly uses a system called TNM classification:

- **T: The size of the tumor and its location**
- **N: The number of nearby lymph nodes that have cancer**
- **M: Metastasis (the spread of cancer to other body parts)**

It is also staged as the following:

- **Stage 0:** Cancer cells are only present in the lining of the airways.
- **Stage I:** Cancer is found very early. It is only present in one lung and has not spread to nearby lymph nodes. The size of tumor is small (up to 4 cm). There are two sub-stages according to its size.
- **Stage II:** Cancer is found early. It might have spread to nearby lymph nodes but not to distant organs. The size of tumor is usually bigger than stage I. There are two sub-stages depending on the size of tumor and if the cancer has spread to lymph nodes.
- **Stage III:** Cancer has spread to lymph nodes and other organs on the same side of the chest. There are three sub-stages depending on the size of tumor and how far it spread.
- **Stage IV:** Cancer has metastasized and spread to other distant organs.



Small cell lung cancer is also staged using a two-stage system:

- **Limited stage:** Cancer is limited to the lung where it first started and may have spread between the lungs or to the lymph nodes above the collarbone.
- **Extensive stage:** Cancer has spread throughout both lungs or the lymph nodes above the collarbone to lymph nodes on the other side of the chest, pleurae, or other organs in the body.

What is the treatment of lung cancer?

Treatment generally depends on the following:

- The stage, size, location, and type of cancer
- Your age, overall health status, medical history (including other lung problems such as emphysema or chronic bronchitis), and lung function
- Your ability to work and perform daily activities

If you have non-small cell lung cancer, treatment options include surgery, radiofrequency ablation, chemotherapy, radiation therapy, targeted therapy, immunotherapy, or a combination of these therapies.

If you have small cell lung cancer, you might receive chemotherapy or radiation therapy. Surgery is rarely an option.

A. Surgery

Surgery is the preferred treatment for non-small cell lung cancer. It aims to remove the tumor completely and the lymph nodes nearby or outside the chest. The doctor might also remove a margin of healthy tissues around the tumor to ensure that no disease remains.

There are different surgical procedures to remove lung tumors. They differ according to how much lung tissue will be removed, and location and size of the tumor. They include:

- **Wedge or segmental resection:** The doctor removes only a part of the lobe containing the tumor. In wedge resection, the doctor removes the smallest part of the lobe with a margin of healthy tissues around it. While in segmental resection, he/she removes a larger segment of the lobe.
- **Sleeve lobectomy:** The doctor removes part of the lobe where the tumor is and part of the bronchus. Then, he/she reconnects the remaining lobes to the bronchus.
- **Lobectomy:** The doctor removes the whole lobe where the tumor is present. It is the most effective surgery even when the tumor is very small.
- **Pneumonectomy:** The doctor removes the entire lung when the tumor is near the center of your chest.

Common side effects of surgery include pain, swelling, scarring, and shortness of breath. Bleeding and infection might also happen after surgery.

After surgery, the tissue of the lung will re-grow and expand over time making it easier to breathe. The doctor might give you breathing exercises to help you regain good breathing.

B. Radiofrequency ablation

Radiofrequency ablation is a procedure that uses high energy waves to heat the tumor and destroy cancer cells. The doctor inserts a thin needle into the tumor under the guidance of a CT scan and then apply an electric current to the tumor. Radiofrequency ablation might be used when the tumor is located near the outer part of the lung and cannot be removed with the different types of surgeries.

C. Chemotherapy

Chemotherapy medications are used to kill cancer cells. They attack all cells that multiply quickly in the body, both normal and cancerous cells.

- The stage and type of cancer will determine the way you will receive chemotherapy.
- You might receive chemotherapy as a single medication or, most commonly, a combination of two or more medications.
- You might receive chemotherapy in pills that you swallow or, most commonly, intravenously injected into the veins (IV).
- You will receive chemotherapy in cycles. Each cycle is followed by a rest period to allow your body to recover. The length of cycles and the rest period depends on the medication used.
- You can receive chemotherapy alone or with other cancer treatments, such as radiation therapy.
- You might receive chemotherapy before surgery to shrink the size of the tumor. This limits the amount of tissue your doctor needs to remove during the surgery. It will also help him/her remove the tumor easier. You might receive chemotherapy after surgery to destroy any remaining cancer cells.
- You might receive chemotherapy to relieve pain and other symptoms of lung cancer.
- Side effects of chemotherapy depend on the type, dose, and length of treatment. They include fatigue, loss of appetite, nausea/vomiting, diarrhea/ constipation, mouth sores, hair loss, low blood cell counts, higher risk of infection, and numbness and tingling in your extremities.

Please refer to the "Chemotherapy" handout for more information.

D. Radiation therapy

- Radiation therapy uses high energy rays to destroy cancer cells and stop their growth.
- You can receive it in two ways depending on the stage and type of lung cancer:
  - **External radiation:** It is the most common type of therapy. A machine moves around your body and directs radiation beams into the tumor area. You usually receive five sessions per week for several weeks.
  - **Internal radiation (brachytherapy):** The doctor places a radioactive substance through a bronchoscope, needle, or catheter inserted directly into or next to the tumor. It can be used to help reduce a tumor blocking an airway.

- In some cases, you need to receive radiation therapy in combination with chemotherapy.
- Radiation therapy might be done before surgery to help shrink the size of tumor. It might also be done after surgery to destroy any remaining cancer cells.
- You might receive radiation therapy as the primary treatment if surgery cannot be done.
- You might also receive radiation therapy to relieve pain and other symptoms of lung cancer.
- Possible side effects of radiation therapy include skin irritation, hair loss, swelling of the lungs, fatigue, and loss of appetite. They might also include:
  - Radiation pneumonitis: An inflammation or irritation of the lungs caused by the radiation therapy to the chest area. Symptoms include cough, fever, and shortness of breath that might last few months after treatment. If your condition is mild, it resolves on its own but if your condition is more severe, you might need to receive corticosteroids.
  - Permanent scarring of lung tissue: This occurs at the location of the tumor. If your condition is severe, you might experience a permanent cough and shortness of breath.

Please refer to the "Radiation Therapy" handout for more information.

E. Targeted therapy

Targeted therapy is a new cancer treatment that attacks cancer cells and blocks their growth. It targets specific cancer cell genes, proteins, or tissues that help cancer cells grow and survive. This treatment is less harmful to normal cells than chemotherapy.

- Medications you might receive include:
  - Medications that block cancer cell growth
  - Medications that stop the blood supply and growth of the tumor
  - Medications that target a gene leading cancer cells to grow
- Targeted therapy can be given in pills that you swallow or intravenously.
- It can be given alone or in combination with chemotherapy.
- Side effects of targeted therapy depend on the medication and dose you receive. They might include diarrhea, loss of appetite, skin problems, mouth sores, nausea, fatigue, vision problems, etc.

F. Immunotherapy

Immunotherapy is a treatment that helps improve the immune system's ability to fight cancer. It uses substances made either by the body or in the laboratory to enhance or restore the body's natural defenses against cancer. Side effects of immunotherapy depend on the medication and dose you receive.

What do I need to know about shortness of breath?

Shortness of breath is a common symptom for lung cancer patients. You might feel that you have difficulty catching your breath, taking adequate breaths, or have tightness in your chest. You might also feel more breathless when you engage in physical activity.

Below are few tips that can help you cope with shortness of breath:

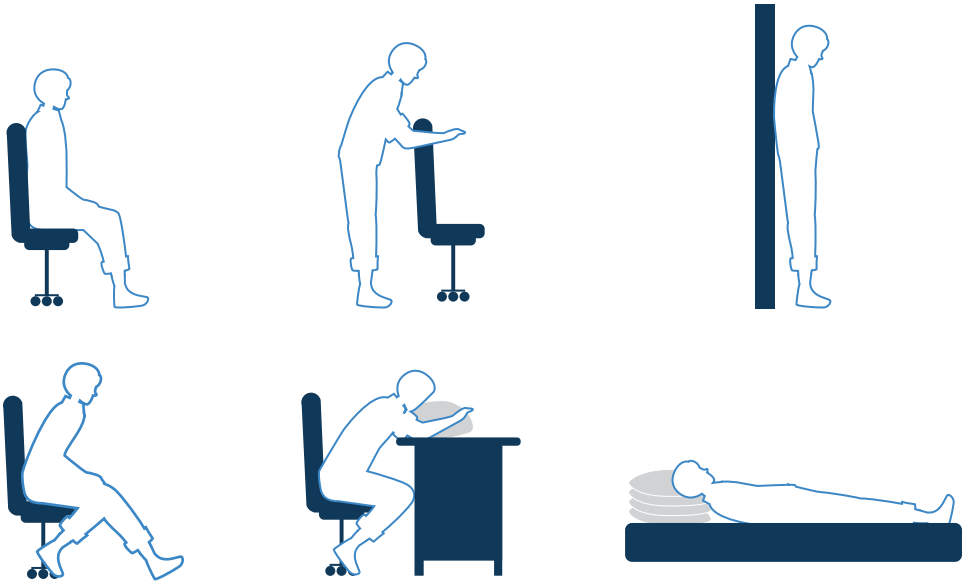
A. Use breathing techniques:

1. **Pursed lip breathing:** Breathe in slowly through your nose, hold your breath for a few counts, and then breathe out slowly while pursing your lips as if you are whistling. Breathing out should take more time than breathing in. For example, count till two while breathing in, and count till four while breathing out. This technique would help you empty your lungs effectively.
2. **Abdominal (diaphragmatic) breathing:** Sit on a chair in a comfortable position. Relax your head, neck, and shoulders. Put one hand on your chest and another hand on your belly or below your rib cage. Breathe in slowly through your nose while feeling your stomach moving out with your hand. Press in the muscles of your abdomen and breathe out fully through your mouth (while pursing your lips). If you relax your abdominal muscles while breathing in, and then press them in while breathing out, you will be able to breathe more air in and exhale more air out.
3. **Paced breathing:** Whether you are walking, running or climbing stairs, breathe in a pattern that can match the efforts you are doing. It is helpful to control your breathing before you start any activity.

B. Try a comfortable "recovery position": This position allows you to take deeper breaths. As you breathe out, try to relax your shoulders and upper chest muscles.

1. **Sit on a chair with your feet flat on the floor.** Lean forward slightly. Use one of the following techniques:
   - Rest your elbows on your knees and hold your chin in your hands.
   - Rest your arms on a table and turn your palms upwards.
   - Rest your arms on a table. Rest your head on a pillow or on your forearms.
2. **Stand comfortably, feet slightly apart, and use one of the following techniques:**
   - Rest your thighs on a wall. Lean forward slightly. Rest your hands slightly on your thighs and dangle your arms.
   - Rest your hands on a table. Lean forward, rest your head down, and relax your shoulders.

C. Try to elevate your head and upper body using pillows when you are sleeping.



D. Try to relax: You might feel scared and anxious when you have shortness of breath. This can make it even harder to breathe. When you start feeling that you are short on breath, try to help yourself relax by letting that moment pass through and closing your eyes. Choose an activity that can help you relax, like music or meditation.

E. Save your energy: Feeling short of breath might make you more easily tired. Try to save your energy for essential tasks. Plan your daily activities ahead of time, take regular breaks, especially around activities that can make you feel short of breath.

F. Cool down the room air: Cooler air is easier to breathe. Open a window to lower the room temperature or try sitting near an open window to get extra air. You can also use a small hand-held fan to help blow cool air towards your nose and mouth.

G. Quit smoking and avoid second-hand smoking.

Contact your doctor immediately if your symptoms get worse.

You can consult the Pulmonary Rehabilitation Center at our Medical Center.
Please call the following number 01 -759616 during weekdays.

When should I follow up with my doctor?

After you finish treatment, you should follow up with your doctor frequently to check your medical status and watch for any late side effects of treatment or cancer that might recur. Make sure you report any relevant symptoms to your doctor whenever you experience them.

Follow up tests that you might need to do include:

- A physical exam and a medical history review (every six to 12 months for two years, and then once yearly)
- Chest CT (every six to 12 months for two years, and then once yearly)
- Screening tests for cancer

You might have a higher risk of developing a second cancer (lung cancer or another type of cancer). **Cancer survivors who continue to smoke are especially at higher risk.**
It is important to pay attention to any signs or symptoms that may suggest the disease has come back.

Does stopping smoking after being diagnosed with lung cancer help?

Quitting smoking whether cigarettes, narjileh, or pipe even after the diagnosis of lung cancer is essential and can improve treatment and chances of recovery.

It can also decrease the risk of complications, cancer returning, or second cancer growing.

Any amount of smoking will decrease the effectiveness of treatment and might increase the likelihood of recurrence.

- **Quitting smoking:**
  - Improves your survival rate
  - Improves your body's ability to heal and respond to treatment
  - Decreases the likelihood of experiencing side effects from treatment
- **Continuing smoking:**
  - Increases the risk of complications from surgery and slows your recovery
  - Increases the likelihood of having more side effects from treatment
  - Increases the chance of cancer returning
  - Increases the risk of developing another serious illness

Avoiding second-hand smoking is also essential. Avoid any exposure to tobacco smoke (cigarettes and narjileh). If you live with someone who smokes, ask them to quit. They should smoke outside the house as a minimum precaution. You should also avoid places where there is tobacco smoke (including narjileh).

Tips during treatment

The "Palliative and Supportive Care Team" and the "Psycho-Oncology Mental Health Team" at the Naef K. Basile Cancer Institute are available to assist you for any concerns you might have during and after treatment.

- **Don't smoke and avoid second-hand smoking.**
- **Learn about the disease:** It is very important to know enough information about lung cancer, its treatment options, and the possible side effects to set your expectations and manage the course of disease. It will also help in taking essential decisions more easily.
- **Talk to your doctor and nurse:** Voice any of your concerns and talk about what you are experiencing. Do not wait until you feel overwhelmed. Please refer to the **"Dealing with Cancer"** handout for more information.
- **Share your concerns with others:** Talking about the disease and treatment with your significant others might be of great help in coping with lung cancer. Patients who are going through the same experience can be of great support as well.
- **Keep a schedule of your appointments and tests:** Ask your doctor about the expected schedule of appointments and tests you need to go through. Keep a good record of your treatment course and plan, along with test results and your list of medications.
- **Eat a balanced diet:** Take care of yourself by keeping a balanced diet that includes cereals, whole grains, vegetables, and fruits. Limit your intake of red and processed meat. Eating an appropriate amount of food and getting enough calories during and after treatment will help you maintain energy and feel better. It can also help you in maintaining a healthy weight during and after treatment. Maintaining good nutrition is important since treatment side effects can cause loss of appetite, fatigue, and nausea. **Please refer to the "Nutrition Tips for Cancer Patients" handout for more information.**
- **Stay active:** Having lung cancer does not mean you cannot continue doing the things you usually like to do. If you feel well enough, stay active as much as you can. Try to get enough rest and sleep. Balance between rest and activities. Exercise can help you feel better, have more energy, rebuild strength, and improve your appetite. It can also help relieve cancer-related fatigue. Any type of exercise, for no matter how long, can be beneficial. If you have been inactive, you can start slowly and build up your activity level. It is recommended to walk for around 15 to 30 minutes every day even if you are using oxygen. This will improve your heart and lung function. Talk to your doctor before starting any type of exercise.