agMOOCs

Diet in lung disease

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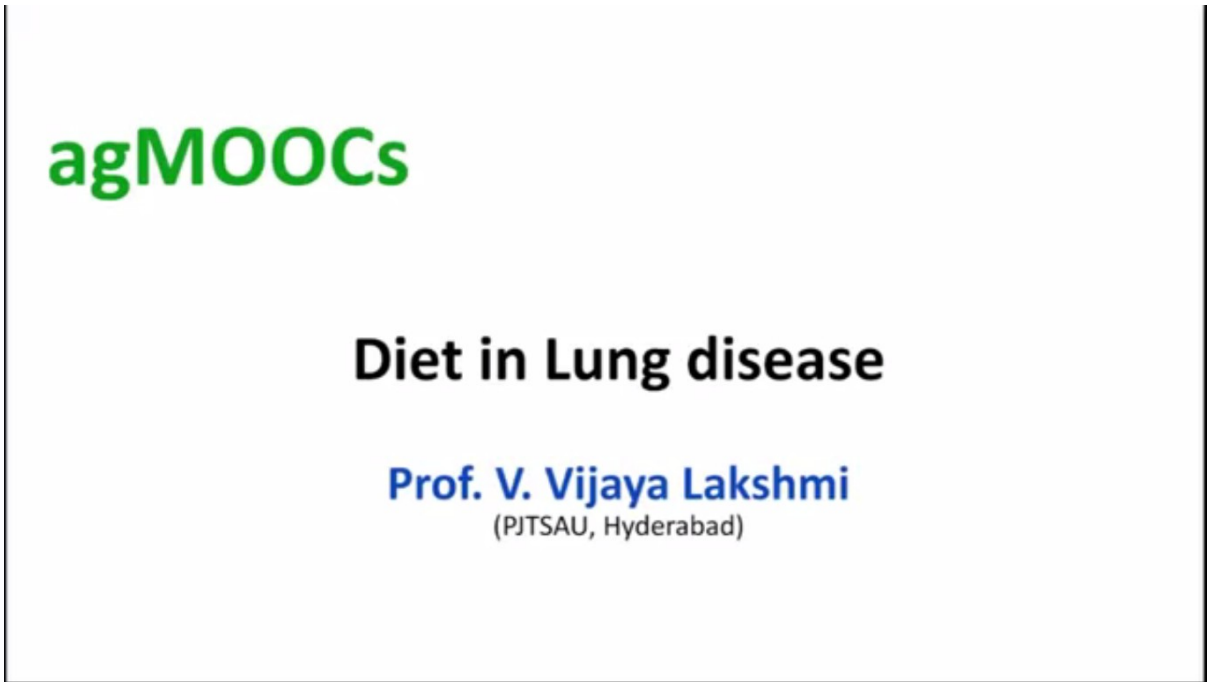

Today we will be seeing the disorders of the lungs. And lungs are the most important part and vital part of the body which are helpful in respiration.

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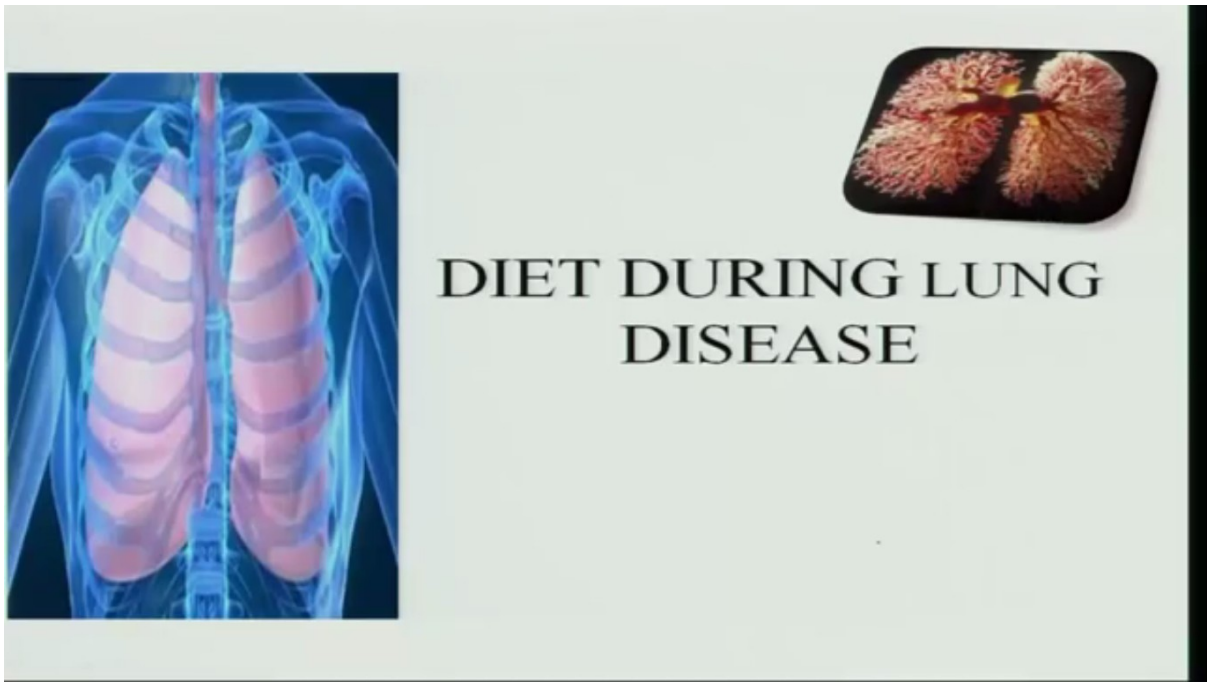

And respiration is our life. There is intake of oxygen, and carbon dioxide is exhaled through the respiratory tract, and there are so many airways in the respiratory tract which when they get inflamed and when the air sacs get disordered, it leads to some disease. Then let us see what type of diet we have to take in lung disease.

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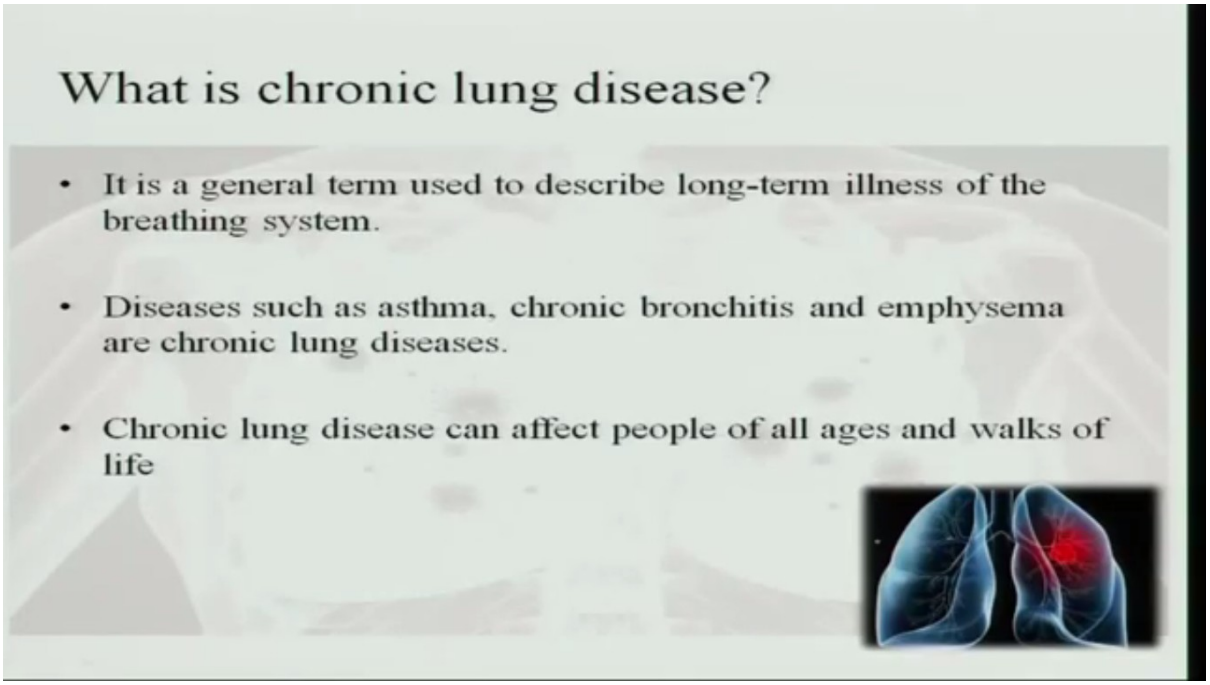

So what is a chronic lung disease? It's a general term used to describe the long-term illness of the breathing system. So whenever the breathing system is affected, you are not able to take your breath completely, it is a difficult breathing, if it is a short breath, then it is a difficulty in the lung. So diseases like asthma, chronic bronchitis, emphysema are called as chronic lung diseases.

So this chronic lung disease can affect the people of all the ages or people from all the walks of life, whether he is a poor man or rich man, is a young man, old man, anybody can be affected because of this problem.

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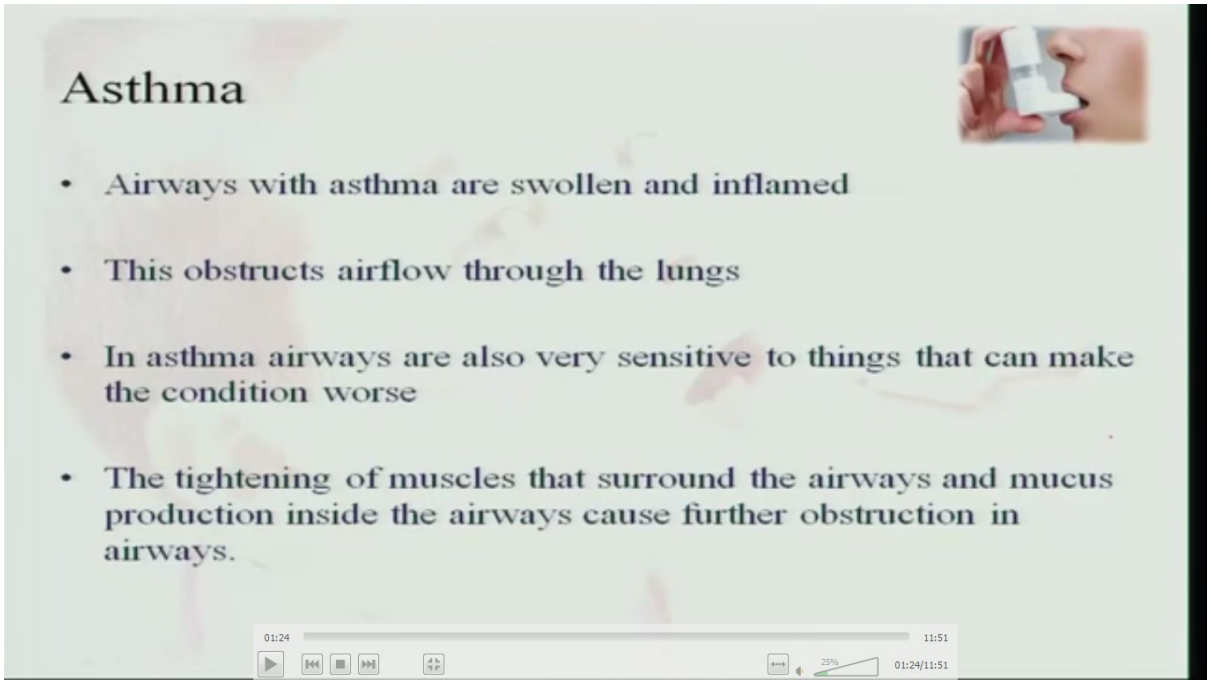

Now asthma, it is the airways in the asthma are swollen and they are inflamed. So the lumen of the airways become very small and the air becomes very difficult to enter into the airway, and this obstructs the air flow through the lungs.

Now asthma airways are also very sensitive to things that can make conditions worst. So, first of all, the airways are blocked, and then further if there is any dust or anything, it aggravates the situation.

Now here the tightening of the muscles that surround the airways and excess mucus production inside the airways causes further obstruction in airways. All of us must have had cold and we have felt this difficulty of the mucus obstructing the airways.

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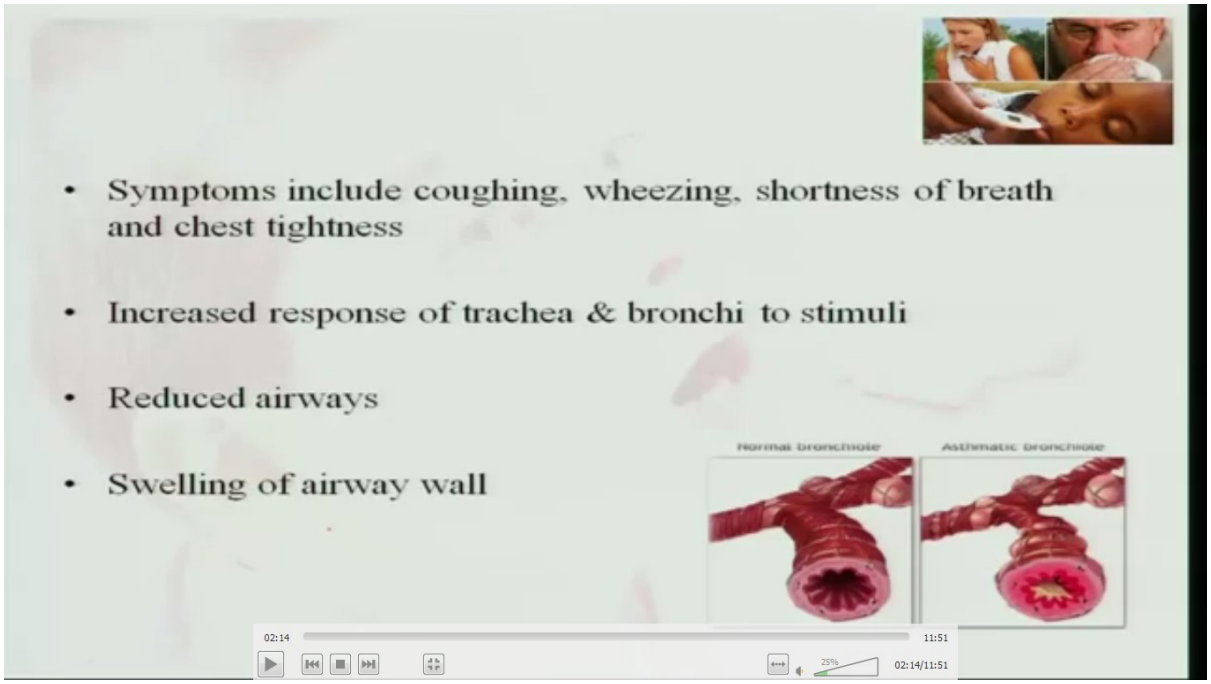

Now symptoms include coughing, then wheezing, shortness of breath, and chest tightness because the lungs are not able to expand. Therefore, you feel tightness of chest. Then there is increased response to trachea and bronchi to any stimuli. So you have to breathe very difficult manner and take in air because of the reduced airways and the swelling in the airways walls.

You can see the lumen here is such a big lumen in a normal bronchi and when it is asthmatic, you see what is the inflammation that occurs and the lumen becomes so small. So imagine what is the amount of air that will flow through this and through this. The amount of airflow is very less. Therefore, it becomes difficult for breathing.

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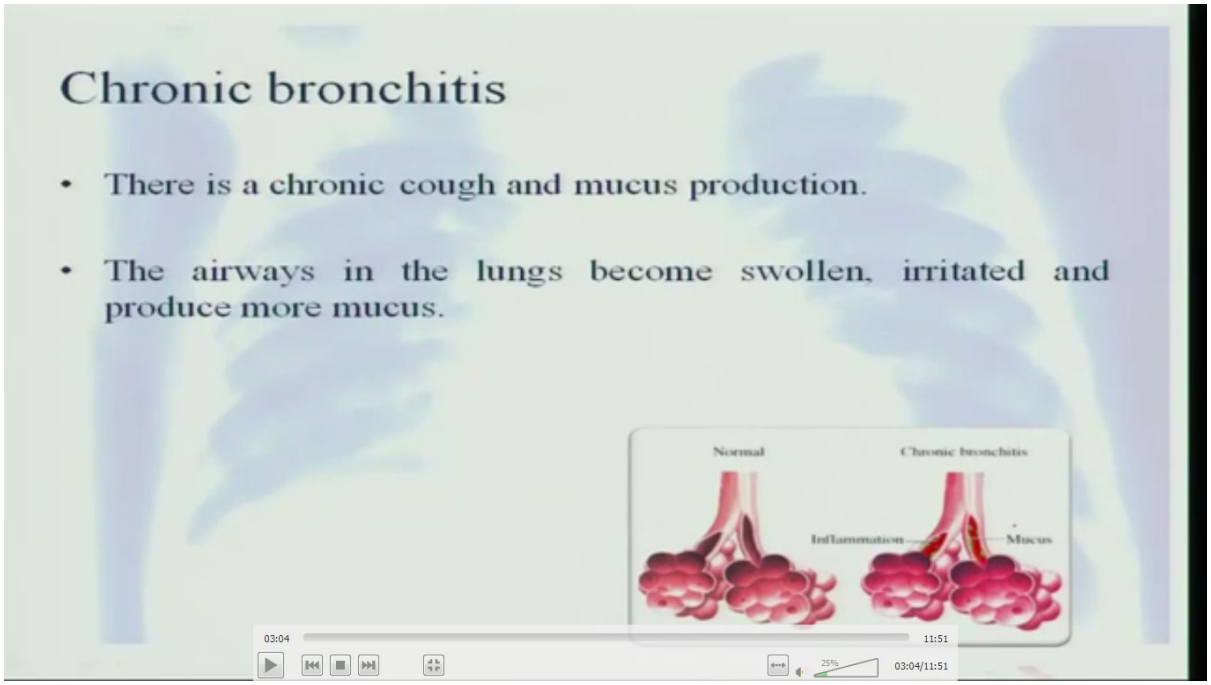

Now, initially, it starts with acute bronchitis, and this is a small episode of the bronchitis. Bronchitis means inflammation of the bronchi, bronchi or the airways.

So, initially, it is acute bronchitis and this, these episodes when they continuously come, it becomes a chronic bronchitis. So for this you have a chronic cough and the mucus production. So airways in the lungs becomes swollen, irritated and they start producing more mucus.

And see the airways have become very -- these are all the mucus filled with mucus and these are so clear. Therefore, there is very difficult breathing and it leads to cough and the mucus also starts blocking the airways.

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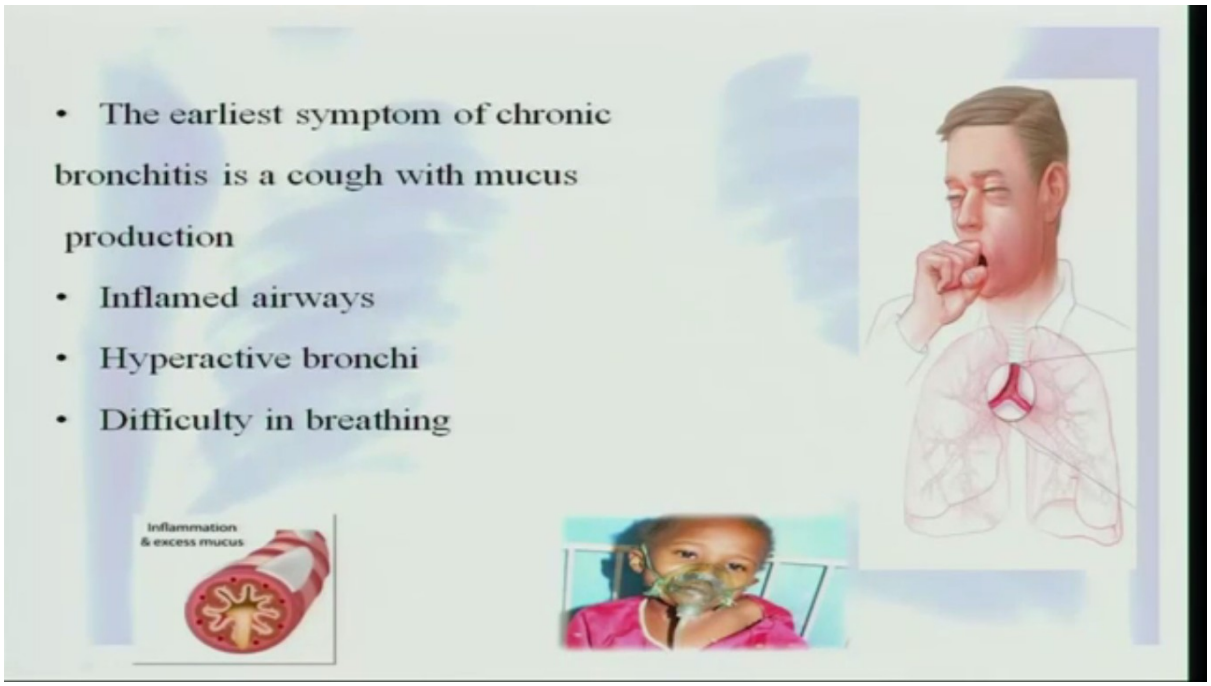

The earliest symptom of chronic bronchitis is cough with mucus. So because of the inflamed airways, hyperactive bronchi and difficulty in breathing. So here there is excess of mucus you can see in this picture, and the airway also has become very small, so the person starts coughing because all the airways have become blocked. And for difficulty in breathing sometimes he may have to be given the oxygen mask for breathing or relieving the symptoms.

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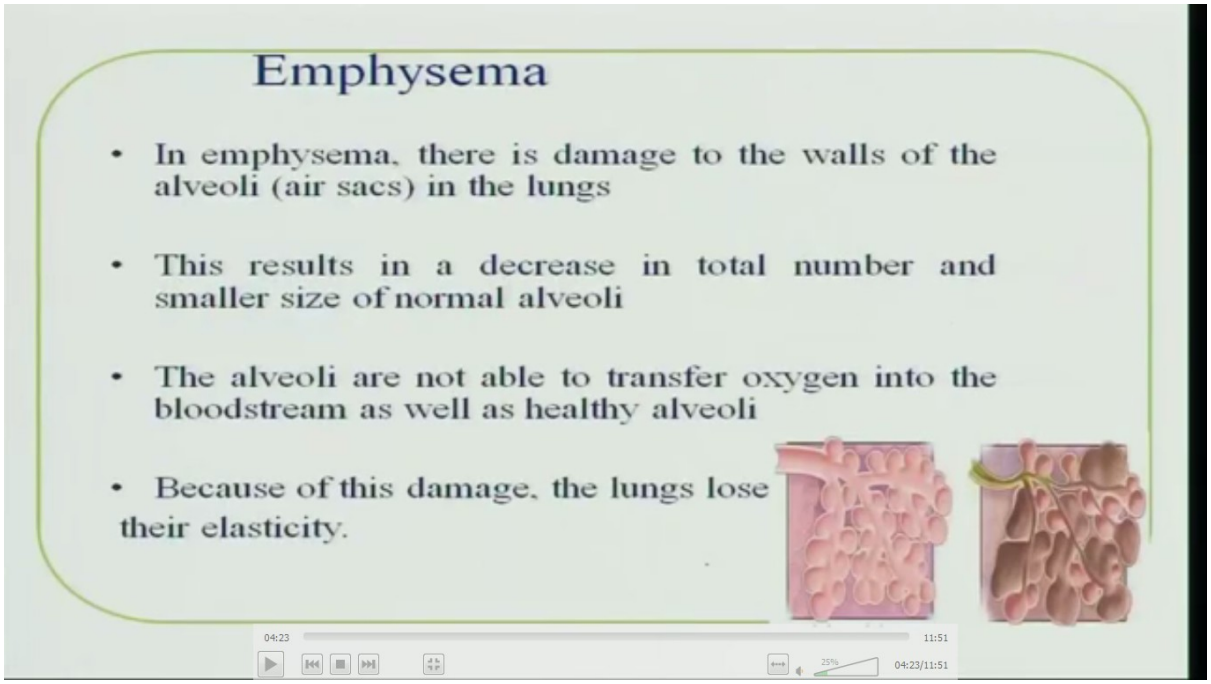

Now emphysema, there is a damage to the walls of the alveoli or air sacs in the lungs. There are so many air sacs in the lungs for a normal birth, but here the damage occurs and the two or three air sacs together form and there is a big, I mean, big opening of the air sac. So this results in decrease in the total number of smaller sized normal alveoli. These air sacs are also called as alveoli.

So alveoli are not able to transfer oxygen. When this each alveoli is connected to a, I mean, the blood vessel passes through the next to the alveoli and oxygen is transferred. When the number of alveolar decrease, the oxygen transfer to the blood also decreases. So, therefore, the blood stream does not have healthy alveoli. The oxygen transfer is decreased and because of this damage, the lungs also lose their elasticity. They become hardened and when they lose their elasticity, more air cannot enter into the lungs.

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Now symptoms of the bronchitis or emphysema. There is reduced lung surface area because most of the alveoli get together and they become a big air sac. Then destruction of air sacs and air spaces, wheezing, and when the person is taking breath, you get a wheezing sound, and there is chronic cough because of the mucus that is getting settled in, and chest shape is distorted and it becomes a barrel shaped.

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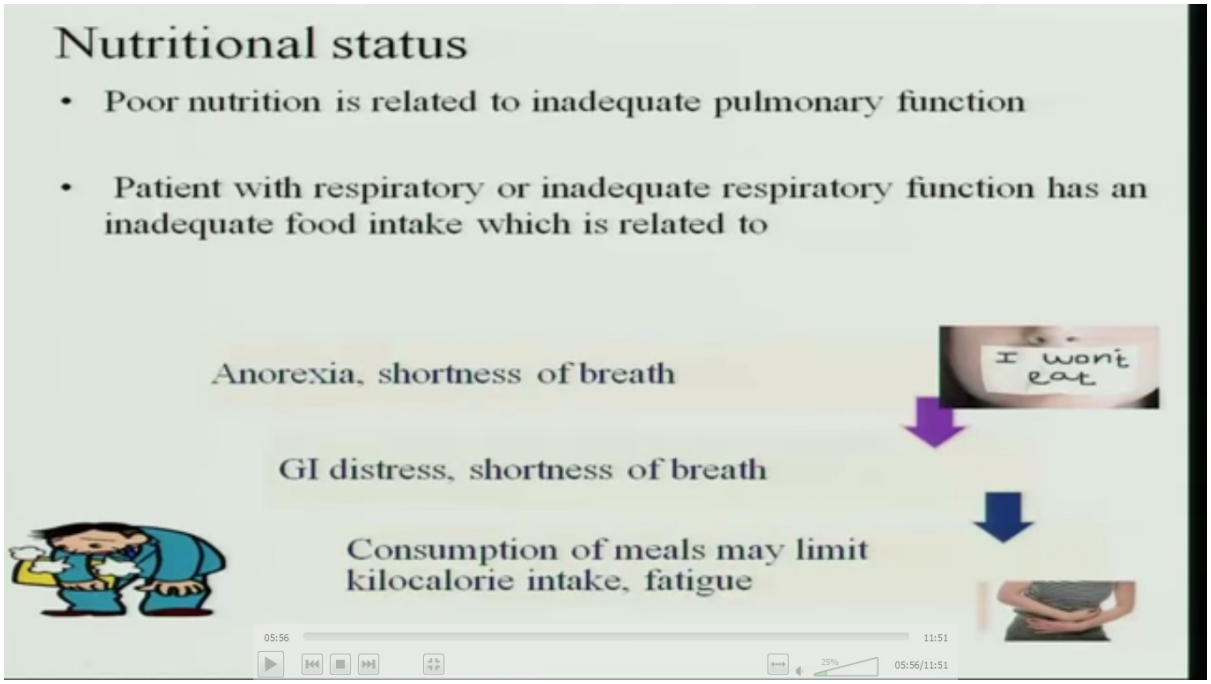

Now the nutritional status of these persons, they have poor nutrition because of the inadequate pulmonary function or because of inadequate breathing, they have poor nutritional status. Because the oxygen supply is very less, energy released is very less.

Now patient with respiratory or inadequate respiratory function, they start having less food. They cannot eat food because the breathing is very difficult. So food intake also decreases and this is because of anorexia, that is loss of appetite, and shortness of breath.

The gastrointestinal tract also gets distressed. Again, there is shortness of breath. And consumption of meals may limit the calorie intake and it leads to fatigue in an individual. Therefore, the nutritional status of an individual comes down. They will say, “I don't want to eat.” So they'll reject the food intake and because there is a stomach pain and the shortness of breath, the nutritional status goes down.

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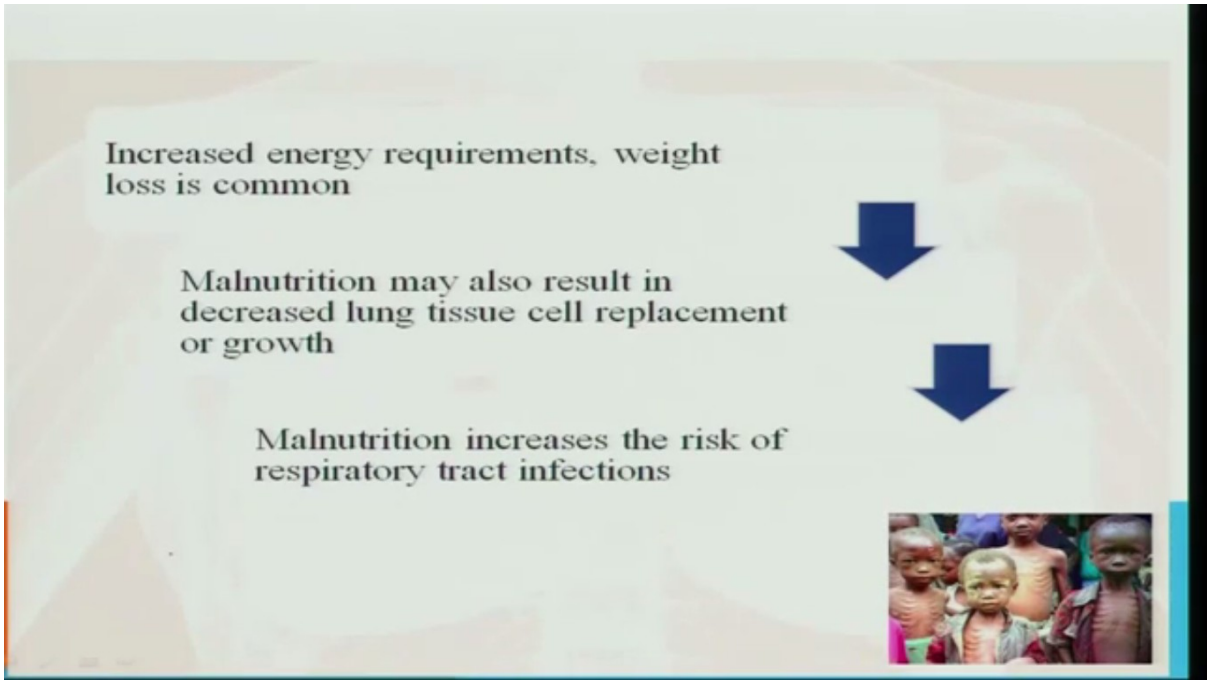

At the same time when the individual has shortness of breath, actually, the energy requirements increase and because of this, there is more energy output compared to the energy intake. Therefore, the weight loss is very common.

And malnutrition may also result in decreased lung tissue cell replacement and growth. So all the worn-out tissues have to be made up. Therefore, malnutrition may result because of this also and malnutrition increases the risk of respiratory tract infections.

So this is a vicious cycle. First of all, there is a decrease in the food intake and the longer -- tissues have to be repaired, and further the nutrition is used for repair of lung tissues, then malnutrition increases.

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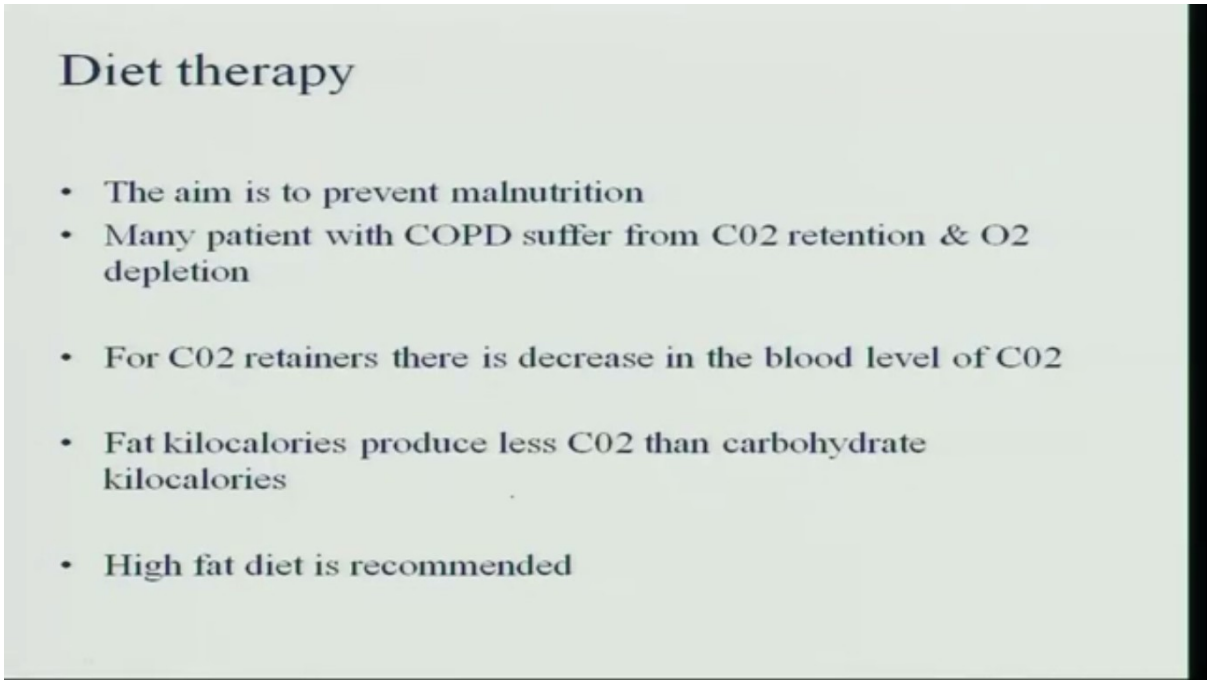

Now diet therapy for lung diseases, the aim is to prevent malnutrition. First thing is to prevent malnutrition. So many patients with chronic obstructive pulmonary disease suffer from the carbon dioxide retention and oxygen depletion. So when more carbon dioxide is retained in the blood, the blood becomes acidic. The pH of the blood increases. So there is a decrease in the level of carbon dioxide.

And fat kilocalories produce less carbon dioxide than carbohydrate calories. So for such people, high-fat diet is required because the carbon dioxide that is produced when the fat is lesser than the carbon dioxide that is produced from the carbohydrates. So you tend to give them more fatty foods. Fatty food doesn't mean that you give them fried foods. You give them easily digested fat.

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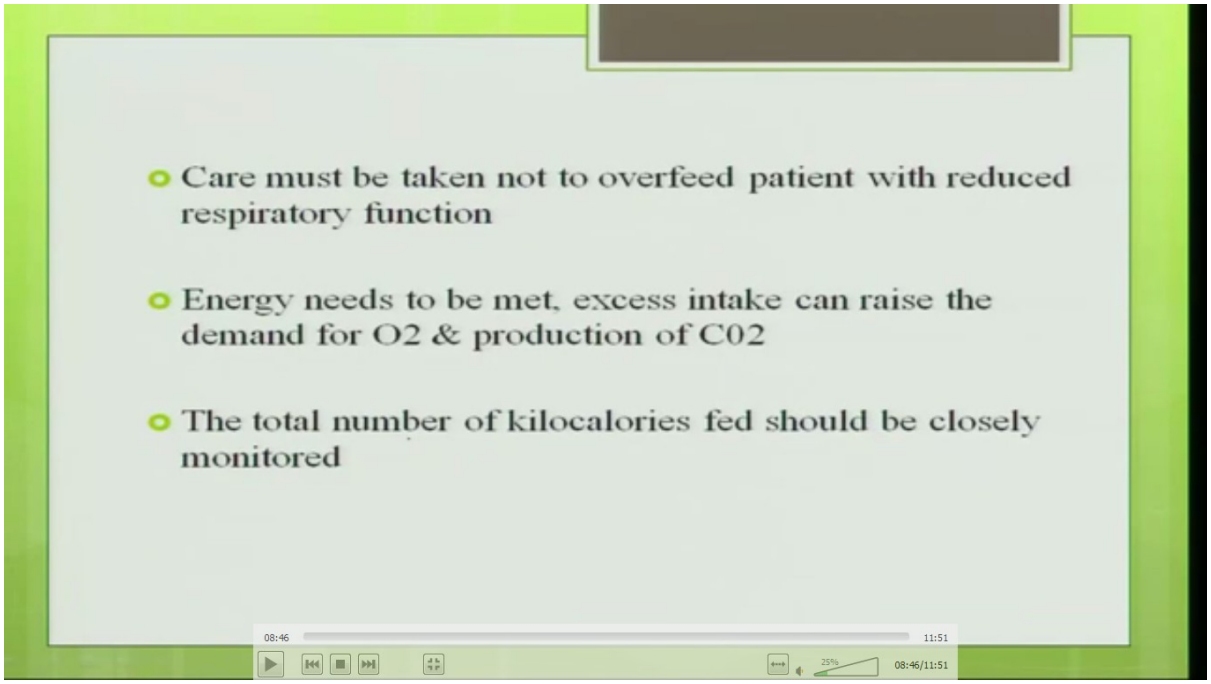

Then care must be taken that you don't overfeed the patient so that it will further reduce the respiratory function. So further the shortness of breath and difficulty in breathing will increase if you overfeed the patient.

So energy need should be met by excessive intake and raise the demand for oxygen and the oxygen intake and carbon dioxide production. And the total number of calories fed should be very closely monitored to improve the nutritional status of an individual.

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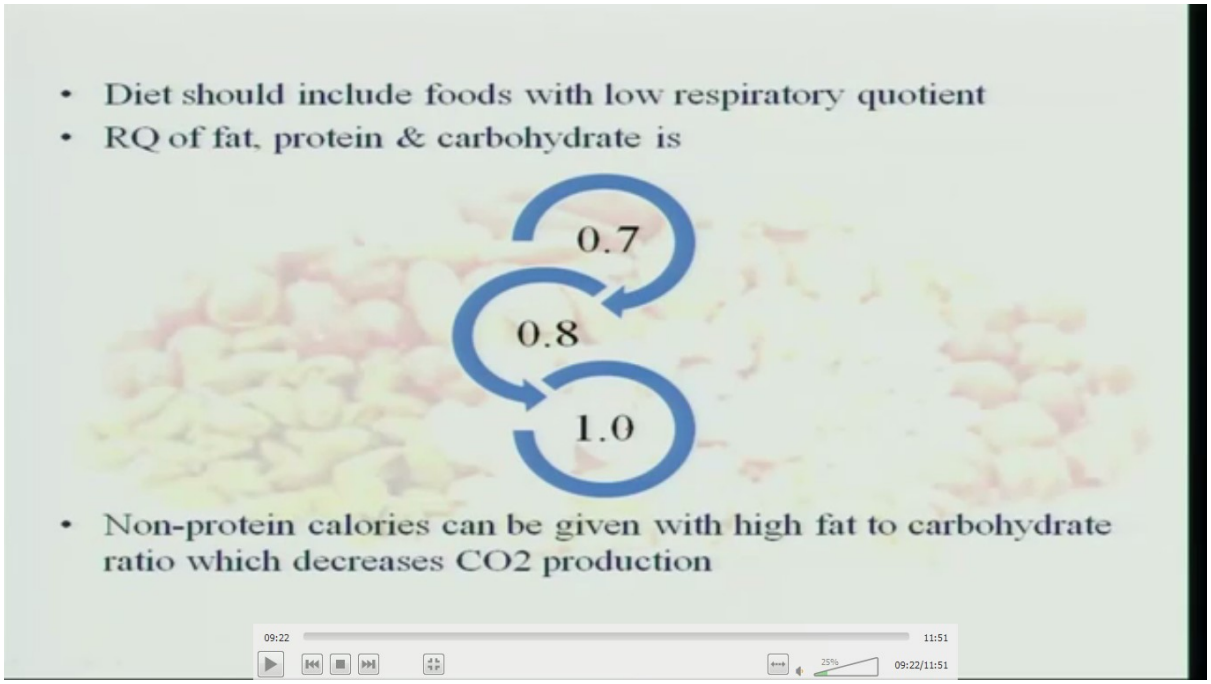

Now diet should include food which have low respiratory quotient. Respiratory quotient is the ratio between the oxygen consumed and the carbon dioxide produced. So RQ of fat,

protein and carbohydrate should be same and because you see the RQ of fat is 0.7 whereas protein it is 0.8 and carbohydrate it is 1 so that means carbohydrates, the amount of oxygen consumed and carbon dioxide produced is same. So fats give less carbon dioxide. You give -- tend to give them fatty foods.

And non-protein calories also can be given with high fat to carbohydrate ratio so that the carbon dioxide production is reduced. This is very important in the treatment of the disorders of lung.

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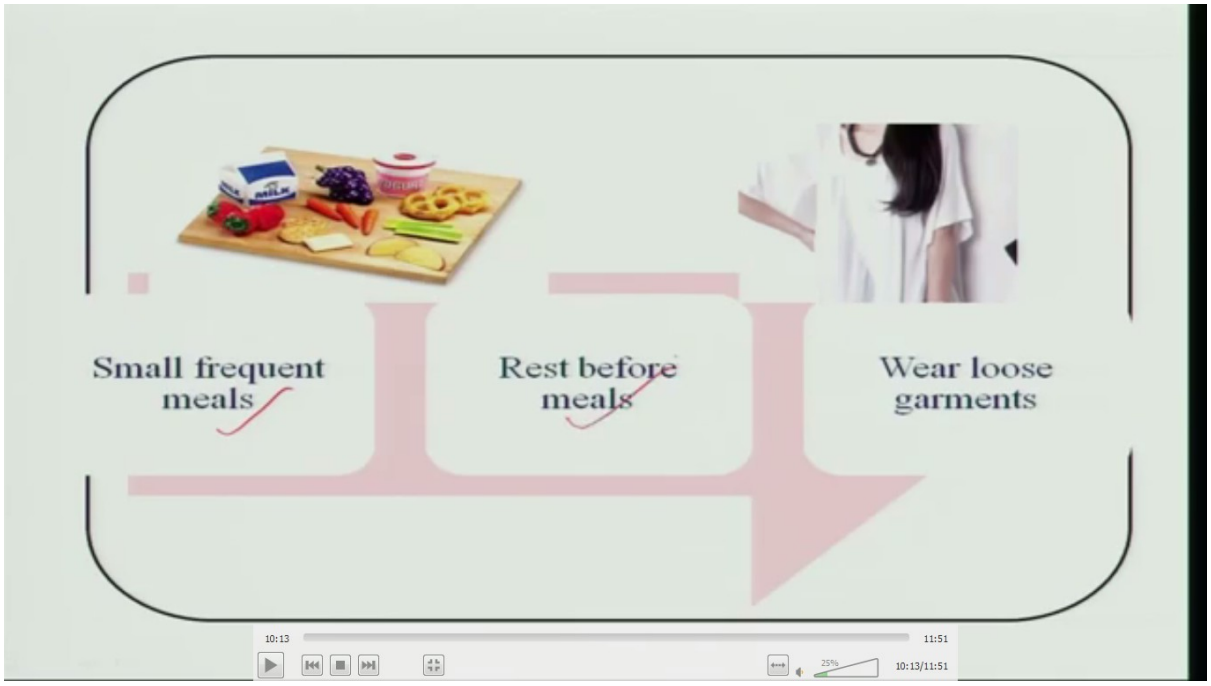

And then you should give them small frequent meals, and you should give them rest before miss, and help them in wearing loose garments so that the difficulty in breathing will reduce.

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Caffeine should be avoided because it stimulates the gastrointestinal system and that a medicine should be taken along with the food because if medicines are not taken along with the food, again, they will increase the acidity in the stomach and further give the increase in the distress of the breathing.

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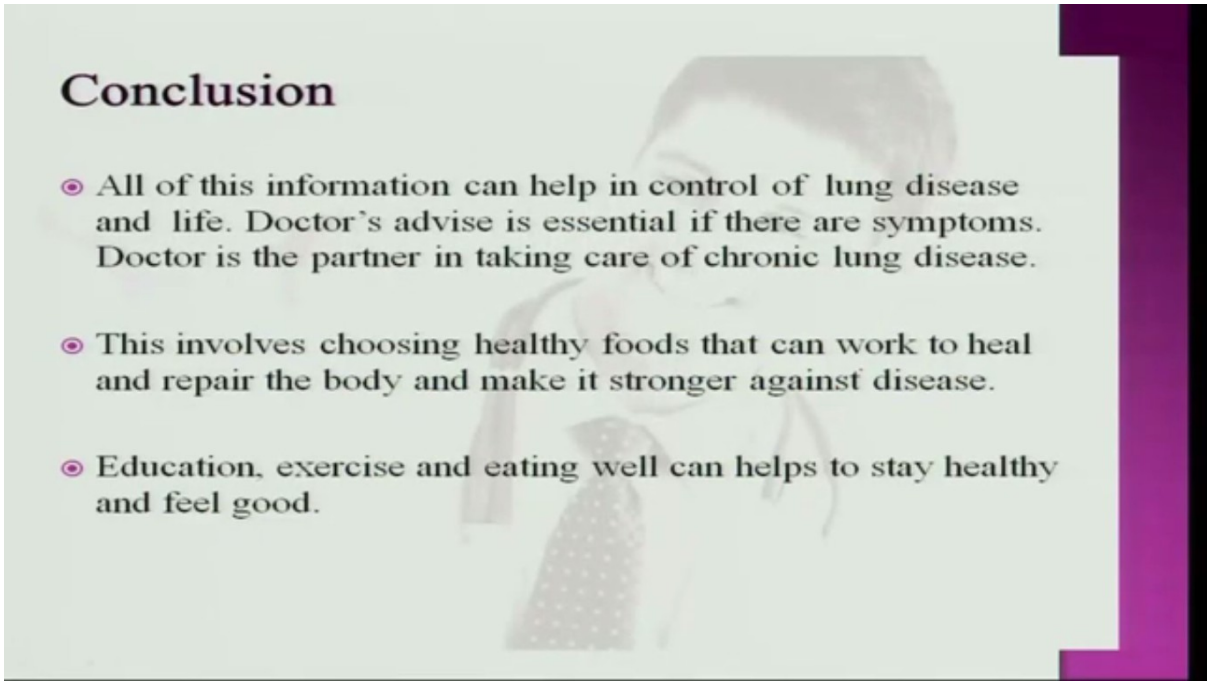

Now so in order to control the lung disease, all this information can control and you give them proper diet, follow the doctor's advice very well, and the doctor and dietician together are partners along with the patient to take care of the illness. So the patient has to co-operate very well with the doctor in order to take proper care and come out of the chronic lung disease.

So this involves choosing healthy foods and that can work to heal and repair the body, and make it stronger against disease. So, protective foods also should be more. Then you give them high energy foods in terms of fat or non-protein calories should be given, and they should be given good vitamins and minerals so that they become stronger against disease. So education, exercise, and eating well helps them to stay healthy, and fit, and recover from the disorders of the lungs.

Thank you.