OCEANAGOLD

Corporate Presentation

UNDERSTANDING HOW YOUR LUNGS WORK

September 2016

Innovation • Performance • Growth

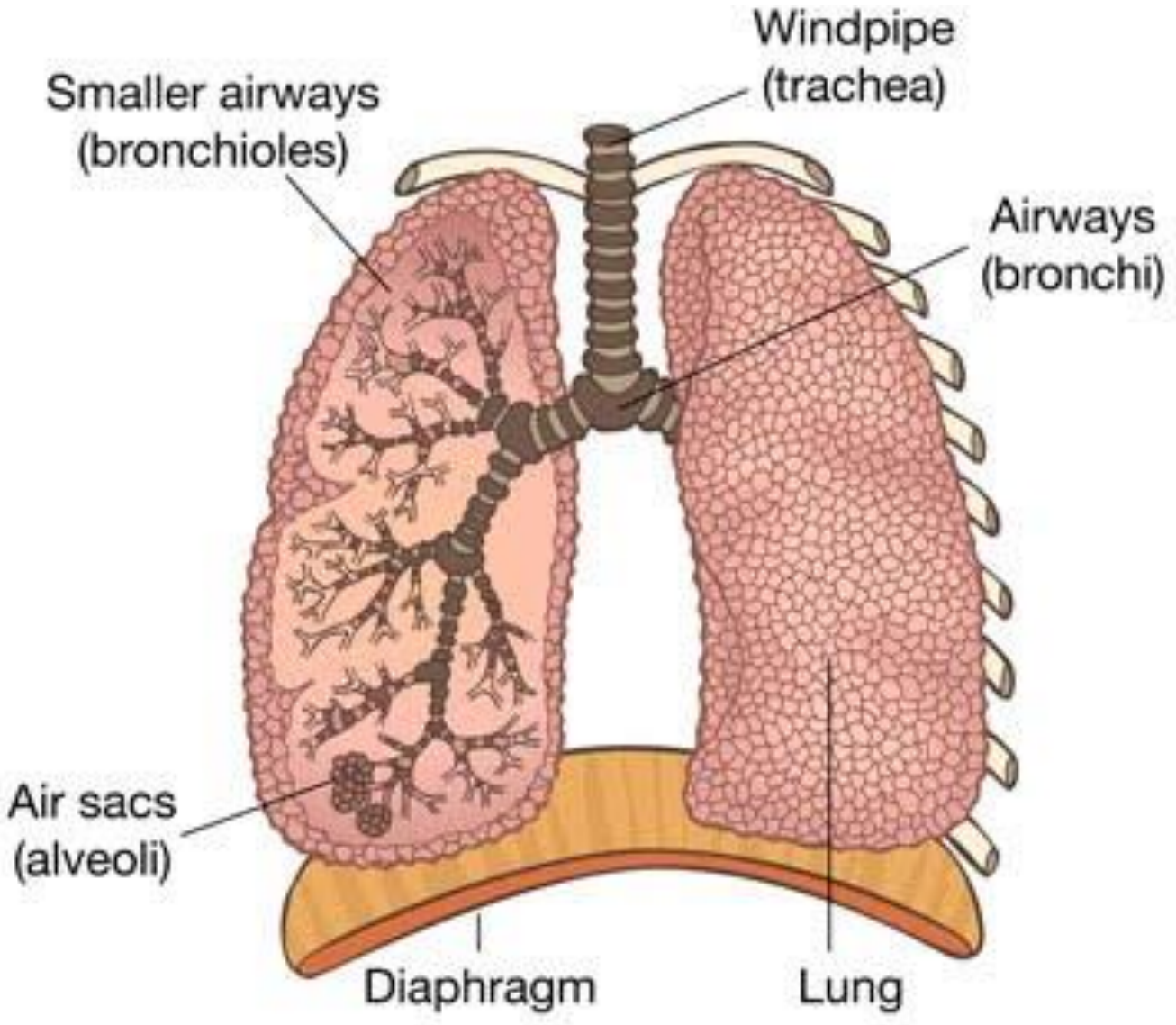
YOUR LUNGS

- Your lungs are second only to the brain as the most fragile organ in your body because of their miniature passageways and air compartments needed to allow the air you breath in to come in contact with the blood vessels so that gas exchange (oxygen in carbon dioxide out) can occur

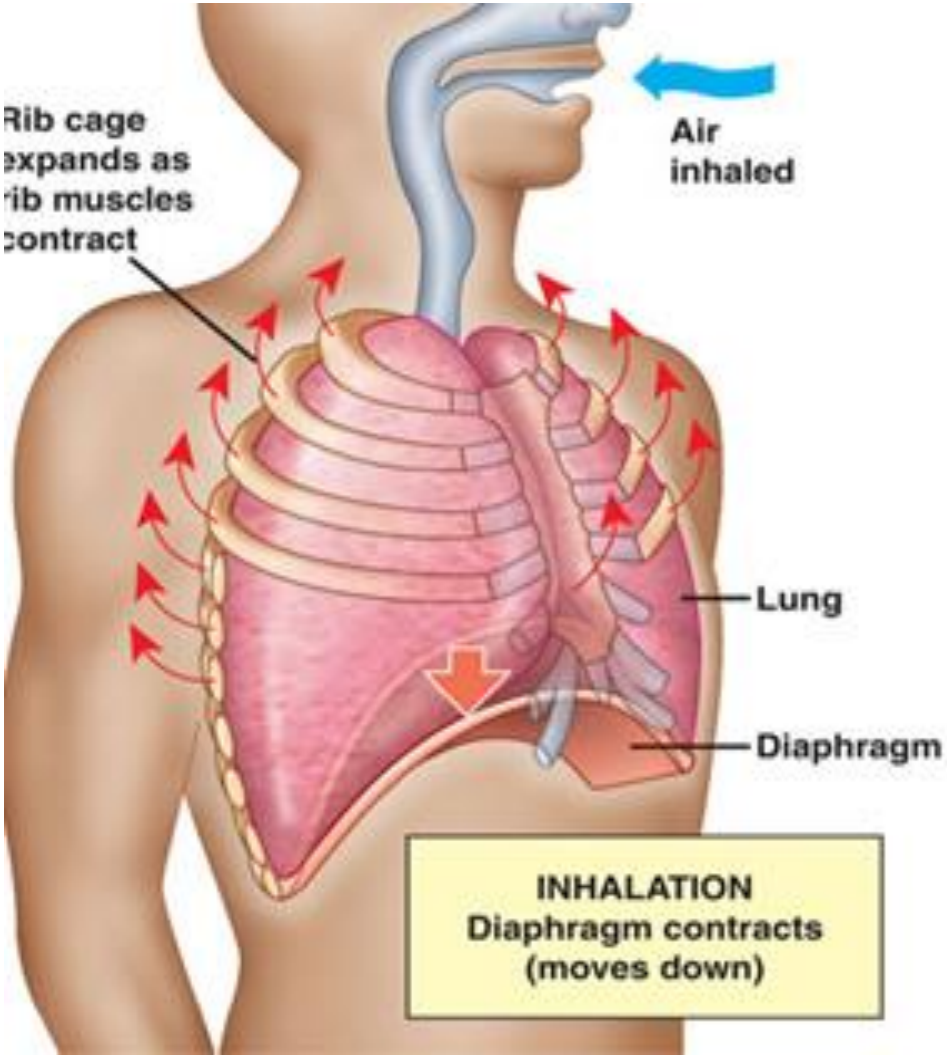
- 5 Litres of blood pass through your lungs every minute

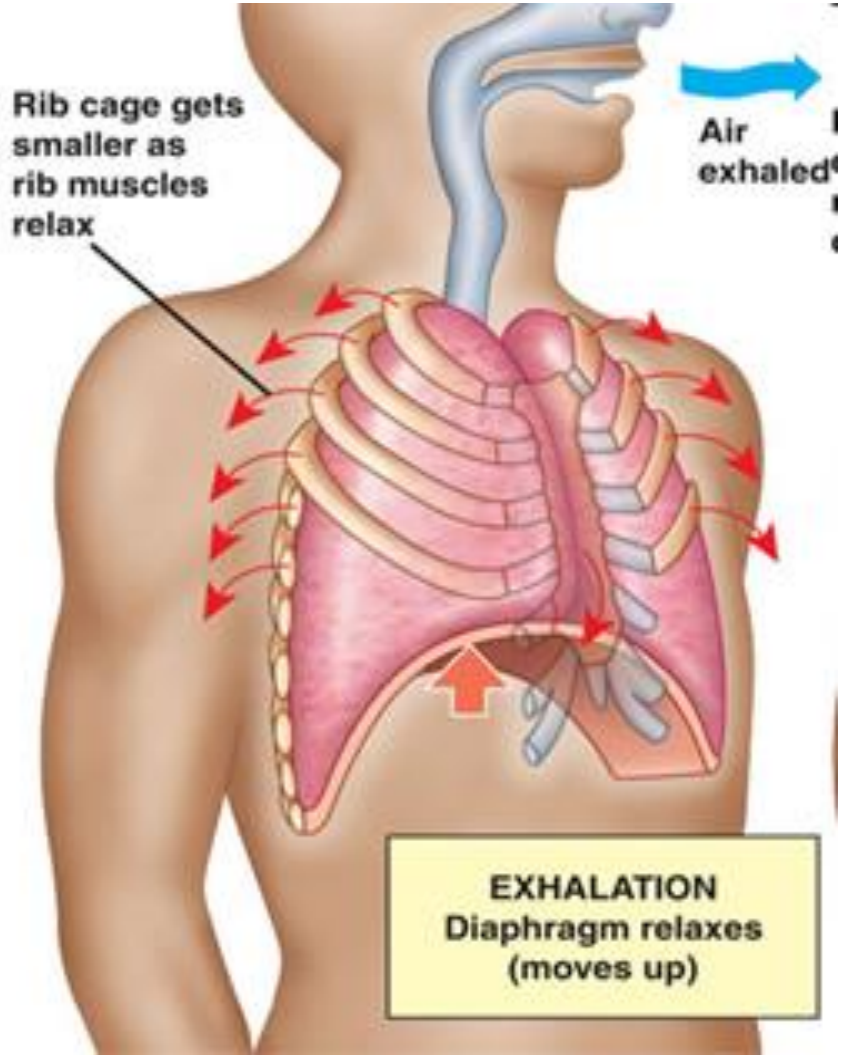
- Human lungs contain 300 - 500 million alveoli (air sacs) providing 1500 miles of airways and equally 70 - 80msq (equivalent to the size of a tennis court)

ANATOMY OF THE LUNGS



HOW DO YOUR LUNGS WORK?





TYPES OF LUNG DISEASE

OBSTRUCTIVE VS. RESTRICTIVE

Obstructive disorders	Restrictive disorders
• **Characterized by:** reduction in airflow. • So, shortness of breath → in exhaling air. (the air will remain inside the lung after full expiration) 1. COPD 2. Asthma 3. Bronchiectasis	• **Characterized by** a reduction in lung volume. • So, Difficulty in taking air inside the lung. (DUE TO stiffness inside the lung tissue or chest wall cavity) 1. Interstitial lung disease. 2. Scoliosis 3. Neuromuscular cause 4. Marked obesity

COPD – CHRONIC OBSTRUCTIVE PULMONARY DISEASE

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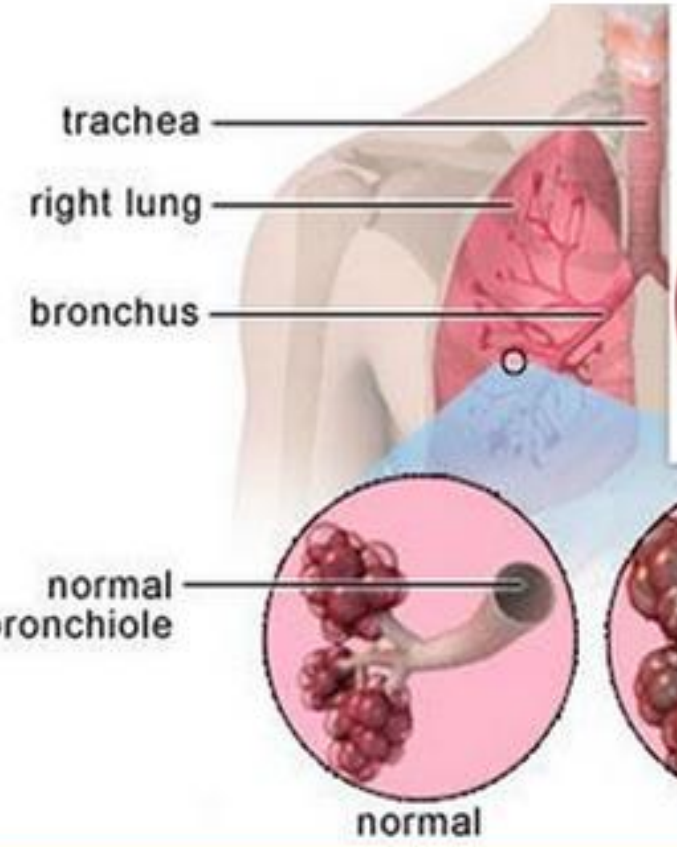
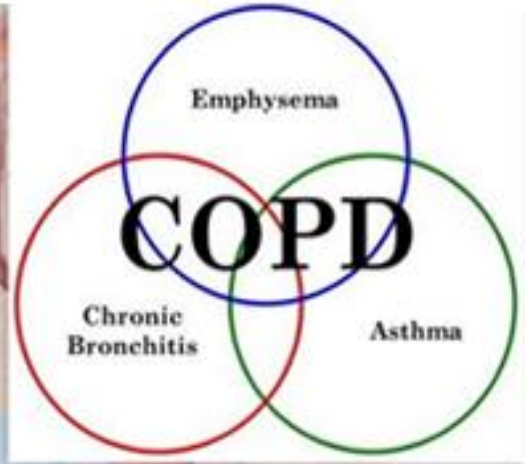
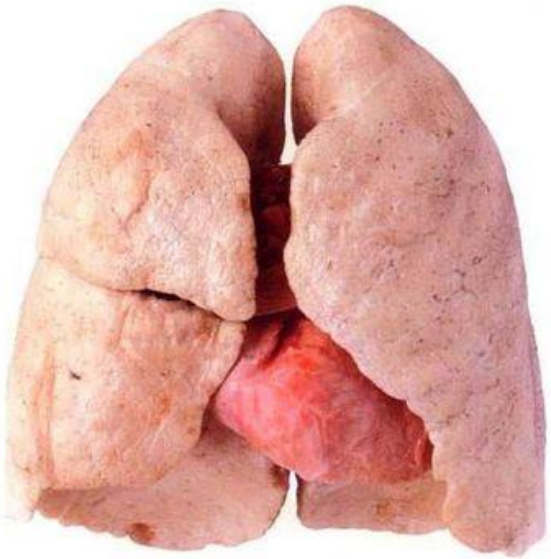
A progressive disease affecting your lungs and the ability to breathe.





COPD

- The main cause of COPD is smoking.
  The likelihood of developing COPD increases the more you smoke and the longer you've been smoking.
  This is because smoking irritates and inflames the lungs, which results in scarring.



Healthy Lung

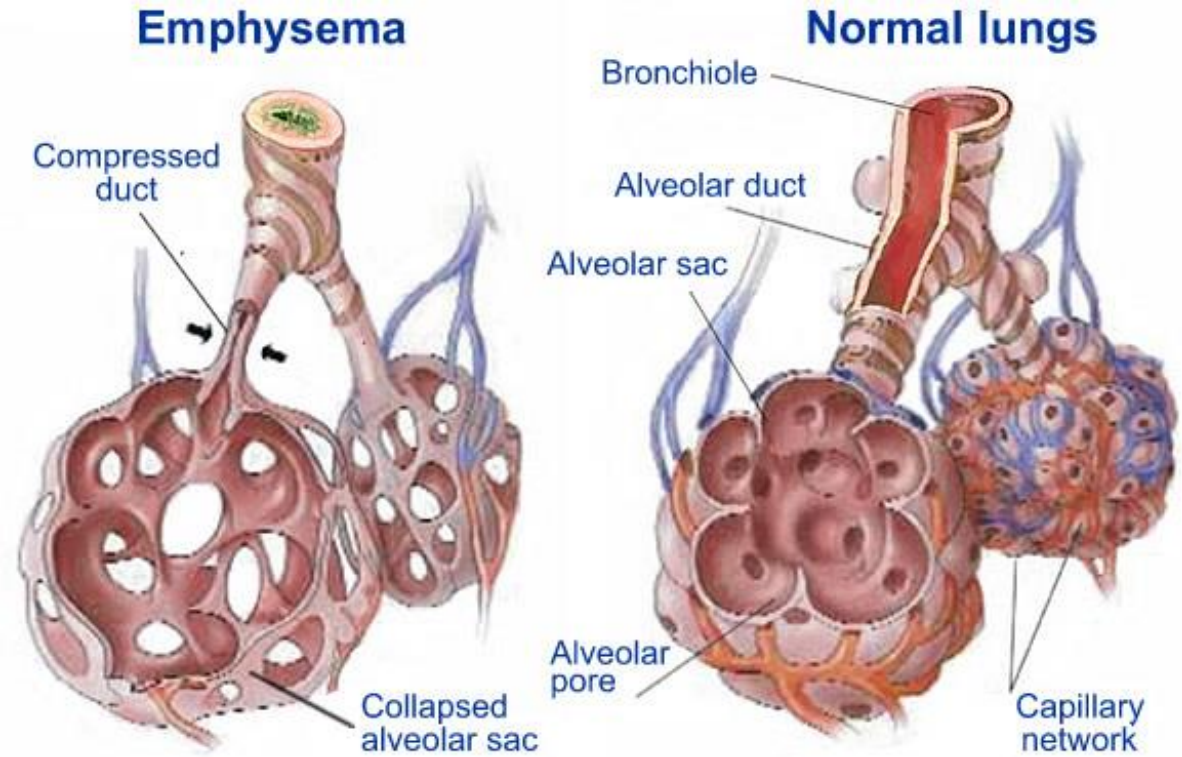
Smoker's Lung

ASTHMA VS BRONCHITIS

- Asthma is a chronic disease that makes your lungs very sensitive and is characterized by recurrent episodes of airway narrowing - due to tightening of the muscles around the airways and swelling of the airways
- *Whereas bronchitis can either be - acute which* makes you sick for a while, but gets better after two to three weeks or c*hronic (longer term).*
  Bronchitis occurs due to inflammation of the lining of the airways which usually resolves itself after it runs it's course

EMPHYSEMA

- Is a long-term, progressive disease of the lungs that primarily causes shortness of breath. In people with emphysema the lung tissues necessary to support the physical shape and function of the lung are damaged.

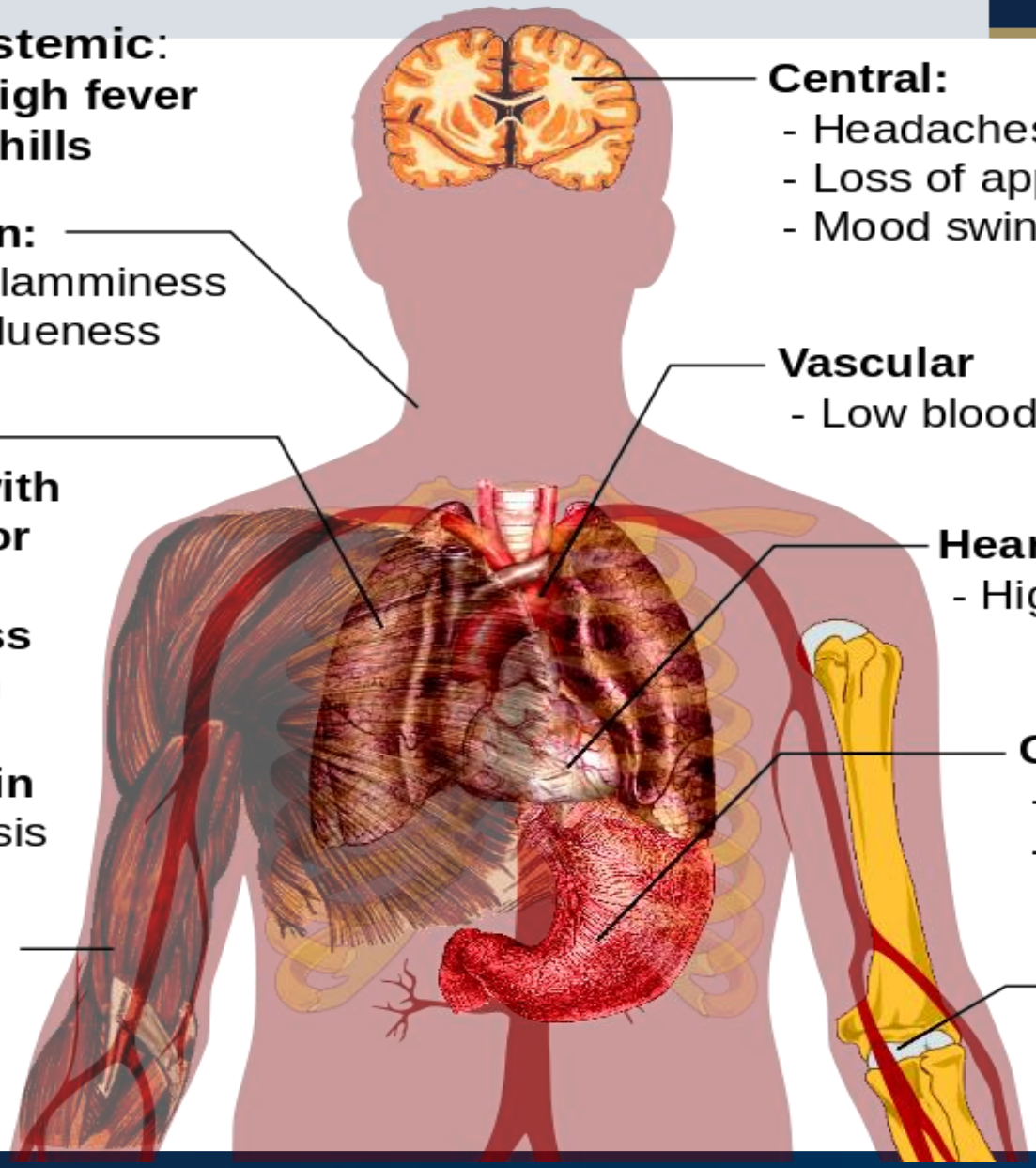


RESTRICTIVE LUNG DISEASE

- Pneumonia
- Pleurisy
- Silicosis which can be both restrictive and obstructive

Main symptoms of infectious

Pneumonia



Systemic:
- **High fever**
- **Chills**

Skin:
- Clamminess
- Blueness

Lungs:
- **Cough with sputum or phlegm**
- **Shortness of breath**
- **Pleuritic chest pain**
- Hemoptysis

Muscular:
- Fatigue
- Aches

Central:
- Headaches
- Loss of appetite
- Mood swings

Vascular
- Low blood pressure

Heart:
- High heart rate

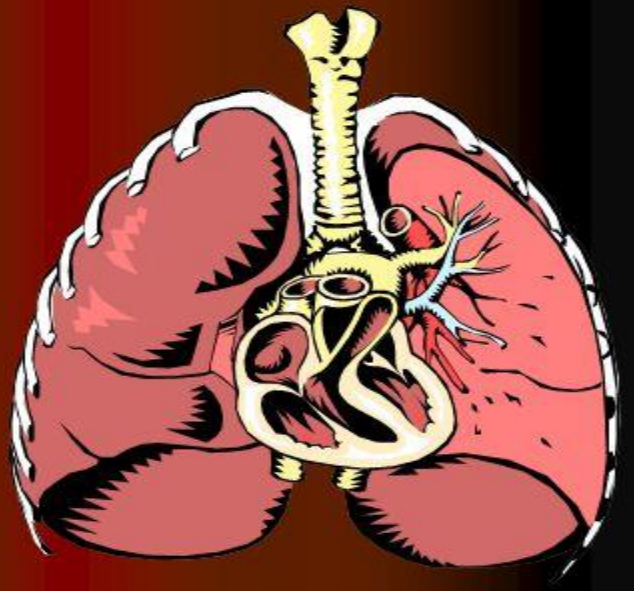
Gastric:
- Nausea
- Vomiting

Joints:
- Pain

PLEURISY

Pleurisy

- Inflammation of the pleura lining of the lungs
- Usually occurs in conjunction with pneumonia and other lung infections
- Symptoms:
- Sharp, stabbing pain when breathing
- Dyspnea
- Fever



SILICOSIS

- Silica is a crystal-like mineral found in sand and rocks, such as granite. Silicosis is a condition caused by inhaling too much silica over a long period of time.
- Silica dust particles act as tiny blades on the lungs. When silica is inhaled through the nose or mouth, particles create small cuts that can scar the lung tissue. Scarred lungs do not open and close as well, making breathing difficult.

TYPES OF SILICOSIS

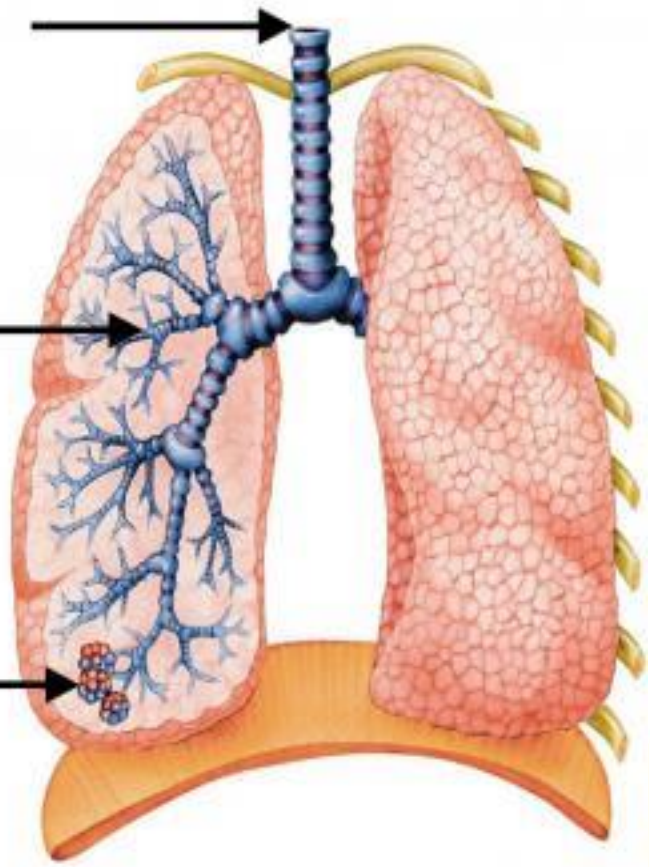
Acute Silicosis:	Forms a few weeks or months after high levels of silica exposure. This condition progresses rapidly.
Accelerated Silicosis:	Comes on five to ten years after exposure.
Chronic Silicosis:	Occurs ten years or longer after silica exposure. Even low exposure levels can cause chronic silicosis.

DUST PARTICLE SIZE

< 100 µm
'Inhalable' fraction.
Can enter the throat:
Irritation

< 10 µm
'Thoracic' fraction.
Past the bronchus:
Acute disease

< 4 µm
'Respirable' fraction.
Can reach the alveoli:
Chronic disease



How small is a micron?

Human hair
100 microns

Pencil tip
200 microns

Eye of needle
300 microns

SILICA VIDEO CLIP

https://www.youtube.com/watch?v=R_sC2wX9Uwc

REFERENCES

- Lung Disease A - Z | The Lung Association
  *https://www.**lung**.ca/**lung**-health/**lung-disease***

- Silicosis Silica Exposure WorkSafeBC (VIDEO) TheVisualMD Video ...

  *www.thevisualmd.com/read_**video**guide/?idu=1083619962&q=**video**&p=611*


Look After
Your Lungs

FIRST AID TOPIC #9

Immediate care for crush injuries

Action

- Identify yourself.
- Maintain and monitor ABC's.
- Remain calm and reassuring.
- Check circulation, colour, warmth and sensation of limbs beyond the crush site.
- Establish the length of time trapped/crushed
- If **LESS** than 1 hour safely remove the object and treat the patients injuries and condition.
- If greater than 1 hour **DO NOT** remove the object treat all injuries in the position found and **WAIT** for the emergency services.
- Ensure that you inform the emergency services that the patient has been trapped greater than 1 hour as they may require additional services.