



Lecture 78:

Nutritional Approach To Common Cardiopulmonary Diseases

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The Three Common Disorders:

- **Atherosclerosis.**
- **High Blood Pressure.**
- **Asthma.**

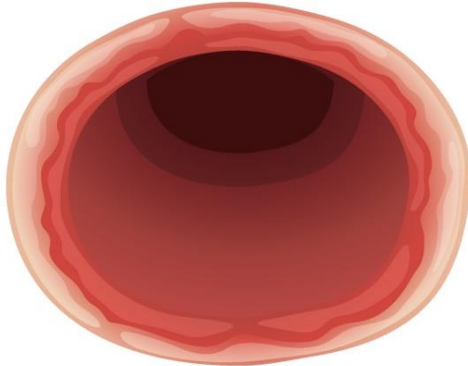
Atherosclerosis:

- **Atherosclerosis is hardening of the arteries.**
- **Atherosclerosis typically begins as an insidious and silent process. The signs and symptoms become evident few years later.**

- **It usually involves large and medium-sized arteries such as the aorta, and its branches, the coronary arteries, and the large vessels of the brain.**
- **The coronary arteries are the most commonly affected arteries.**

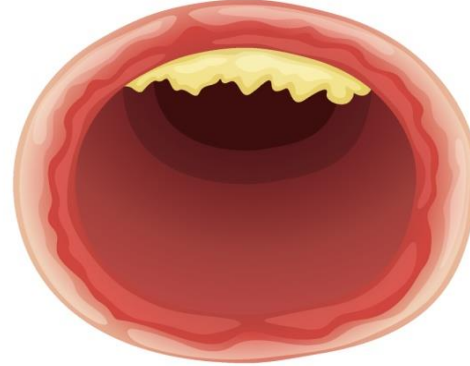
Arteriosclerotic Vascular Disease (Atherosclerosis)

1



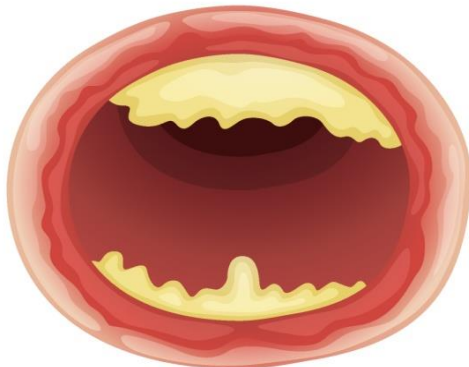
Healthy artery with
no plaque build-up.

2



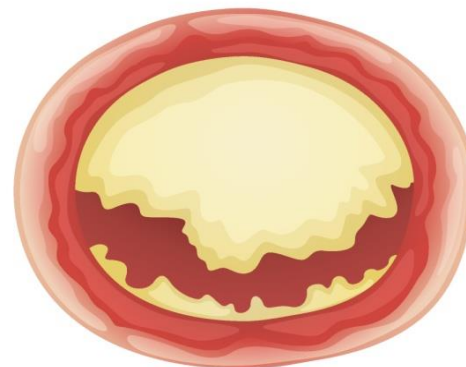
Atheroma: Intracellular
lipid accumulation.

3



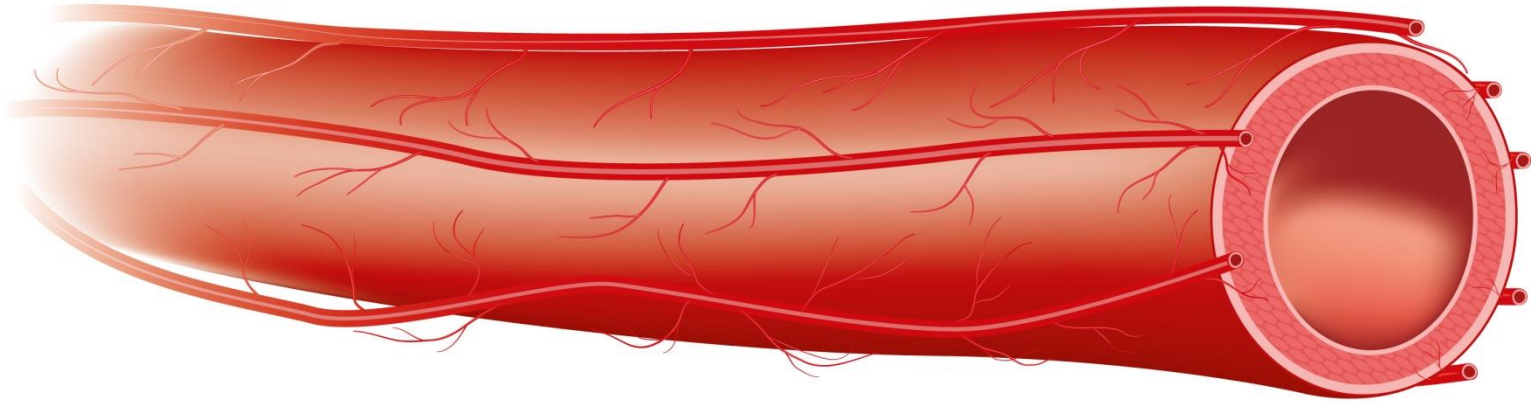
Fibroatheroma: Multiple
lipid cores.

4

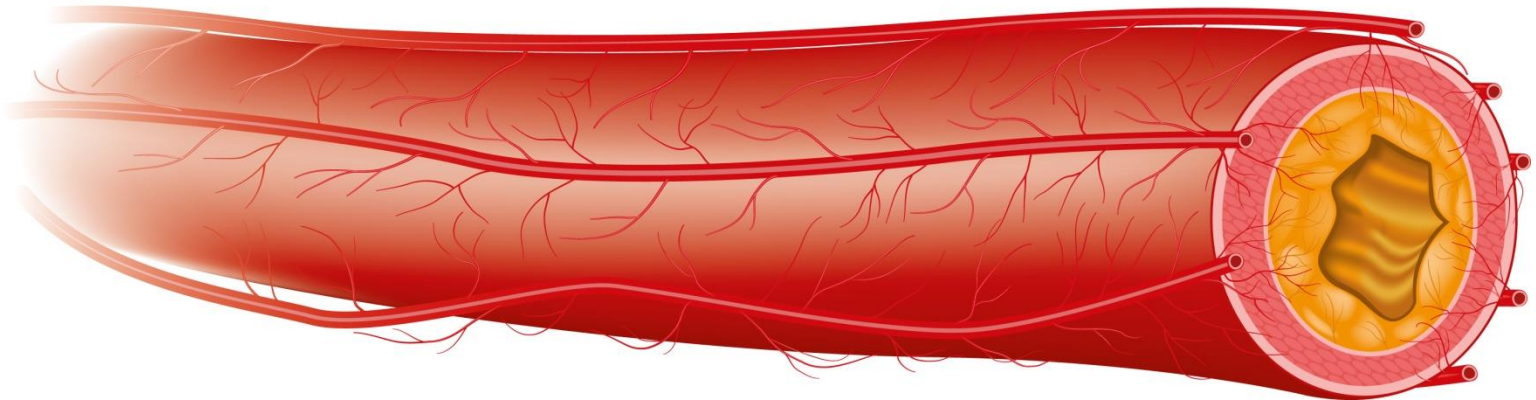


Thrombosis: Arterial
surface defect. Likely
hematoma-hemorrhage

Healthy artery walls



Atherosclerosis



- Atherosclerosis of the coronary artery (or arteries) causes **ischemic heart disease (IHD)**.
- It is a condition in which there is an inadequate supply of blood and oxygen to the heart.
- **IHD may demonstrate itself as:**
 - stable angina
 - unstable angina
 - myocardial infarction (heart attack)

- **Stable angina** is due to a transient decrease of blood and oxygen to the heart.
- Patients with stable angina complain of episodes of chest discomfort described as heaviness, squeezing, smothering or pressure.
- Frank pain is rare.
- The discomfort lasts 2 to 5 minutes and can radiate to either shoulder and to both arms.

- **Unstable angina** occurs at rest or with minimal exertion, and usually lasts more than 10 minutes.
- It is more severe, prolonged, and frequent than stable angina.

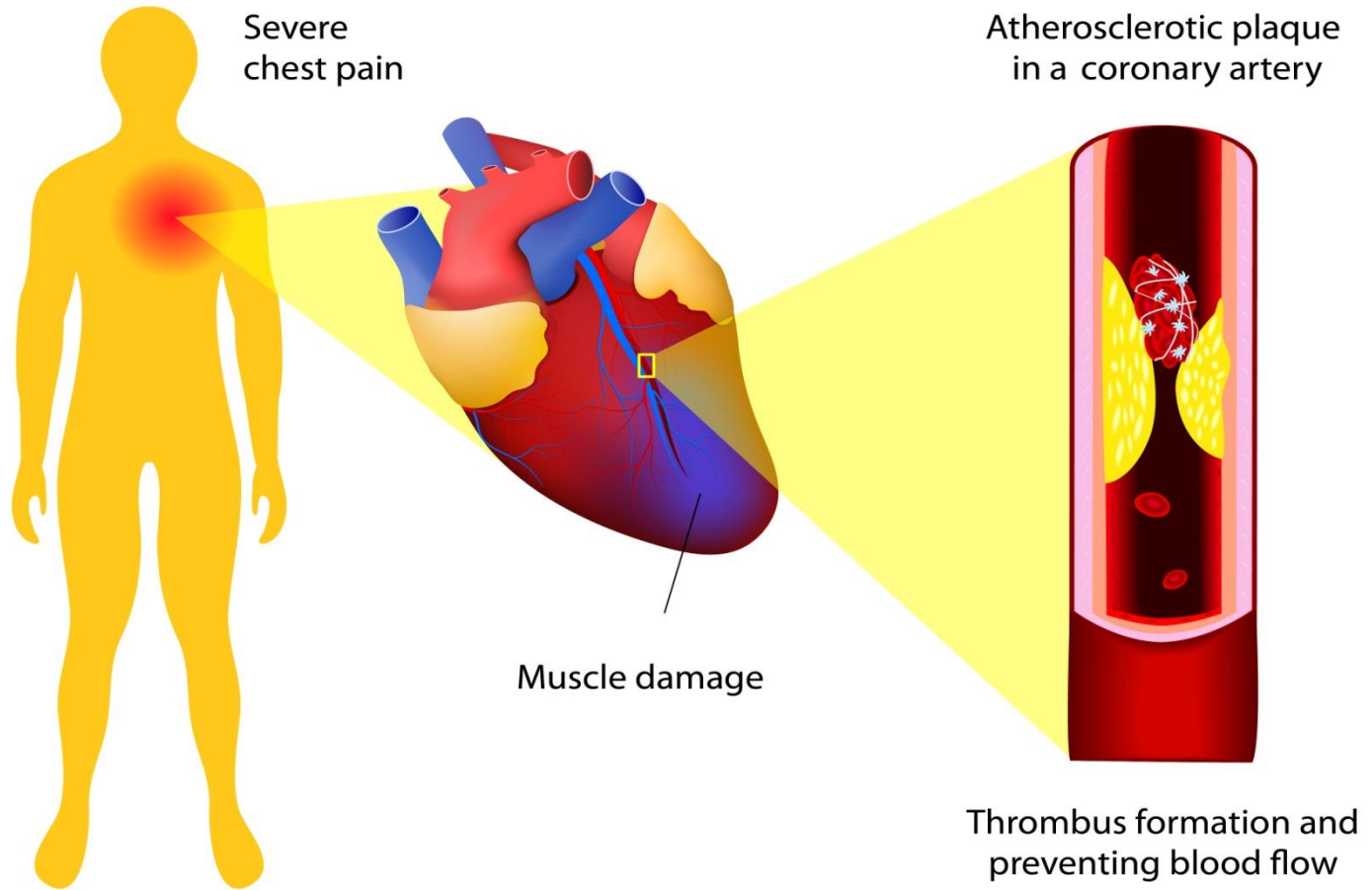


Pain is the most common presenting complaint in people with heart attack.

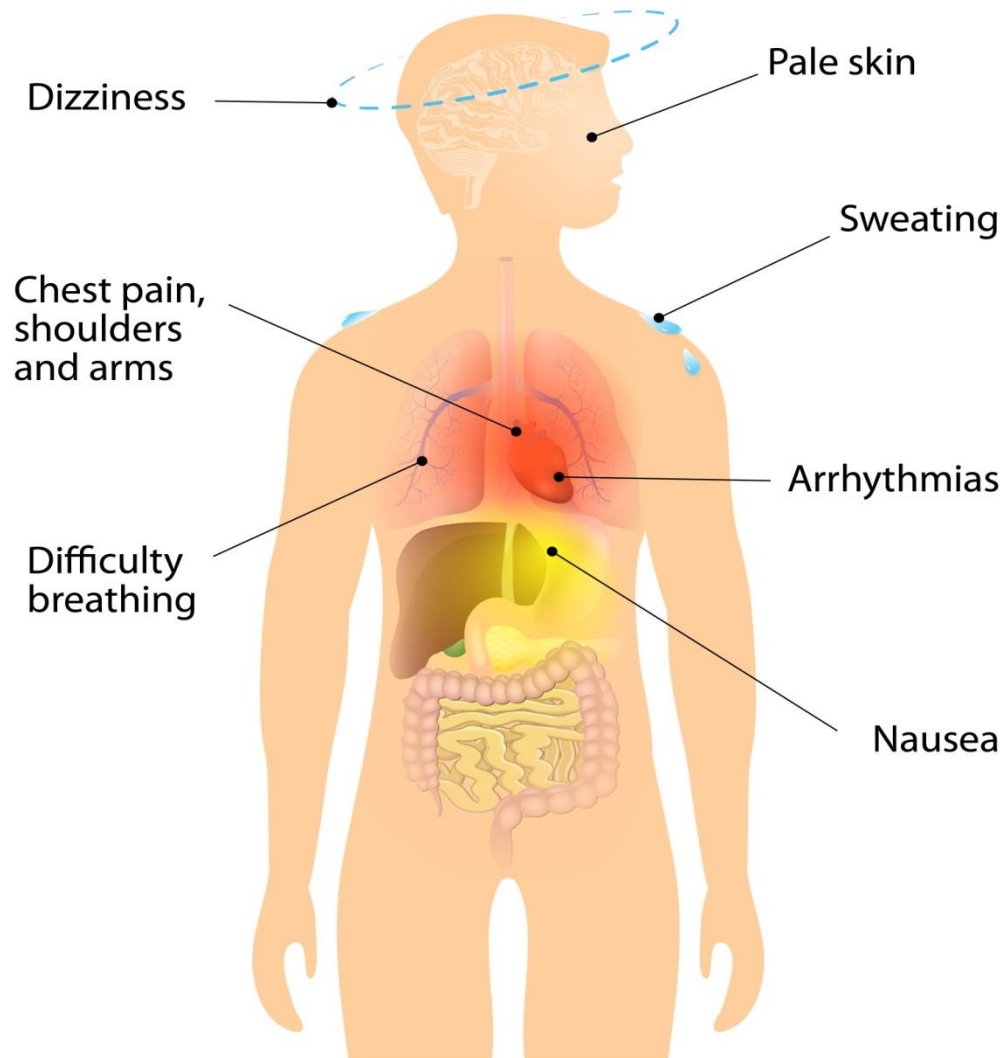
Image: Copyright©Depositphotos.com /Lisa F. Young

- **Acute myocardial infarction (heart attack)** is characterized by severe chest pain, which is deep and visceral. It is heavy, squeezing, and crushing. Sometimes it is described as stabbing or burning.
- The pain radiates to the arms and jaw and is often associated with weakness, sweating, nausea, vomiting, and a sense of impending doom.

HEART ATTACK



HEART DISEASE SYMPTOMS



- The heart diseases are the leading cause of death throughout the world, with coronary heart disease being the most common form of heart diseases.
- The exact cause or causes of atherosclerosis have not been determined yet.
- However, recent studies show that **chronic inflammation in the blood vessels** could be the major contributing factor.

Potential risk factors for developing atherosclerosis are:

- **Age.**
- **Family history.**
- **Smoking.**
- **High blood pressure.**
- **High level of bad cholesterol (LDL).**
- **Diabetes.**

- **Nutritional deficiencies (especially essential fatty acids, vitamin B6 and iodine).**
- **Obesity.**
- **Oxidative stress.**
- **Heavy metals.**
- **Sedentary life style.**
- **Elevated levels of CRP (C-reactive protein), homocysteine, triglyceride, and uric acid.**

Restricted Foods:

- **Saturated fats: all animal based fats and oils except fish.**
- **Foods high in trans-fat: fries, cookies, chips, muffins, doughnuts, pastries, cakes and crackers.**
- **Hydrogenated oils.**
- **Processed foods.**
- **Yolk.**
- **Sugars and sweets.**
- **Too much salt.**

Recommended Foods:

- **Whole grains.**
- **Legumes.**
- **Foods high in fiber.**
- **Fresh fruits and vegetables.**
- **Fruits high in flavonoids: berries.**
- **Red grapes. It contains a heart-protecting antioxidant called “resveratrol”.**
- **Green leafy vegetables.**
- **Garlic.**
- **Onions.**

- **Cold water fish: salmon, halibut, and mackerel.**
- **Nuts, especially walnuts.**
- **Avocado.**
- **Flaxseeds.**
- **Chiaseed.**
- **Hemp seeds.**
- **Spices turmeric, sumac, and cinnamon.**
- **Green teas.**
- **Cayenne pepper.**
- **Red wine.**

Recommended Supplements:

- **Co - Enzyme Q10:** 100 – 300 mg a day.
- **Omega – 3 fatty acid:** 1 – 3 grams a day.
- **Resveratrol:** 200 – 600 mg a day.
- **French Maritime Pine Bark Extract:** 100 – 200 mg a day.

- **Grape seed extract:** 50 – 100 mg a day.
- **L – Carnitine:** 2000 – 3000 mg a day.
- **Garlic pills:** 500 – 1000 mg a day.
- **Magnesium:** 200 – 400 mg a day.

- A high – potency vitamin **B – Complex**.
- **Vitamin C**: 2 – 3 grams day.
- **Vitamin E**: 400 – 800 IU a day.

Miscellaneous Suggestions:

- Regular exercise, especially aerobic.
According to American Heart Association: an exercise of moderate intensity for 40 minutes for 3-4 times a week is the best exercise for the heart.
- Liver detoxification.
- Colon cleansing.

High Blood Pressure (Hypertension):

- Hypertension is one of the biggest health issues throughout the world and a leading factor in developing heart disease, stroke and kidney failure.



People with high blood pressure should have their blood pressure checked regularly. Image: Copyright©Depositphotos.com/Erwin Wodicka

- Hypertension is present when the blood pressure exceeds **140/90 mm Hg** at several determinations.



- The cause of about **90%** of hypertension is poorly understood, and it is called “*essential, idiopathic or primary hypertension*”.
- Secondary hypertension means that an elevated blood pressure results from a diagnosable disease.

Potential risk factors:

- **Poor nutrition.**
- **Obesity.**
- **Alcohol.**
- **Sedentary life style.**
- **Too much salt.**
- **Kidney diseases.**
- **Underactive or hyperactive thyroid.**
- **Birth control pills.**

- **Stress-induced (pain, anxiety, hypoglycemia, and after surgery).**
- **Pregnancy.**
- **Medications (corticosteroids, ephedrine, Advil, and some medications of depression).**
- **Sleep apnea.**
- **Heavy metal toxicity, especially lead.**

Restricted Foods:

- **Saturated fats: all animal based fats and oils except fish.**
- **Foods high in Trans-fat: fries, cookies, chips, muffins, doughnuts, pastries, cakes and crackers.**
- **Hydrogenated oils.**
- **Processed foods.**

- **Sugars and sweets.**
- **Too much salt.**
- **Caffeine.**
- **Soft drinks.**
- **Alcohol.**



Recommended Foods:

- **Water: 2 liters a day. Dehydration makes hypertension worse.**
- **Whole grains.**
- **Legumes.**
- **Foods high in fiber.**
- **Fresh fruits and vegetables.**
- **Fruits high in flavonoids: berries.**
- **Foods high in potassium: bananas, tomatoes, sweet potatoes, apple, asparagus, cabbage, and alfalfa.**

- **Red grapes. It contains an antioxidant called “resveratrol”.**
- **Green vegetables, particularly parsley, celery,**
- **Garlic and onions.**
- **Cold water fish: salmon, halibut, and mackerel.**
- **Nuts and seeds.**
- **Flaxseeds.**
- **Chia seed.**
- **Hemp seeds.**

- **Spices: turmeric, sumac, and cinnamon.**
- **Green tea.**
- **Hibiscus tea.**
- **Chamomile tea.**
- **Cayenne pepper.**
- **Red wine.**
- **Dark chocolate.**



Recommended Supplements:

- **Co - Enzyme Q10:** 100 – 300 mg a day.
- **Omega – 3 fatty acid:** 1 – 3 grams a day.
- **Resveratrol:** 200 – 600 mg a day.
- **French Maritime Pine Bark Extract:** 100 – 200 mg a day.

- **Grape seed extract:** 50 – 100 mg a day.
- **Potassium:** 99 – 198 mg a day. Warning: if you are taking a potassium sparing diuretic, or have a kidney or heart disease, consult your doctor prior to taking potassium.

- **Garlic pills:** 500 – 1000 mg a day.
- **Magnesium:** 200 – 400 mg a day.
- **Calcium:** 500 – 1000 mg a day.

- **Taurine:** 1000 – 3000 mg a day.
- **Multivitamin:** a high potency product.
- **Vitamin C:** 1000 – 2000 mg a day.

Miscellaneous Suggestions:

- Liver detoxification.
- Colon cleansing.
- Regular exercise.

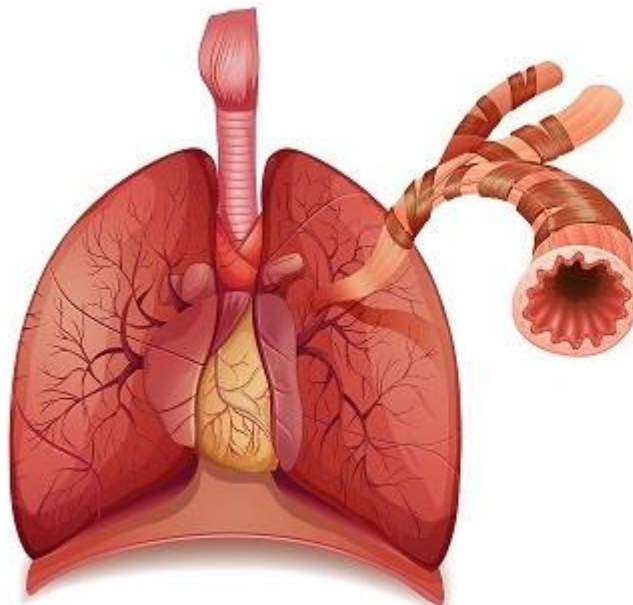
Asthma:

- Asthma is a lung disorder characterized by shortness of breath, cough and wheezes.

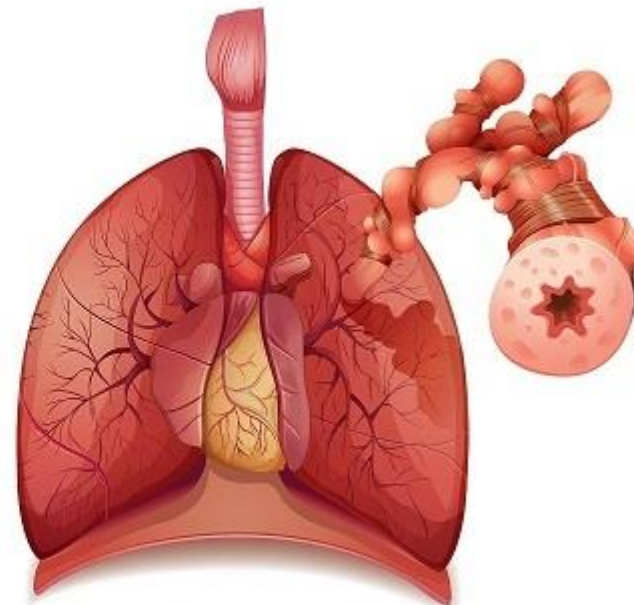


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- It is a reversible airway obstruction caused by spasms and inflammation.
- People with asthma have difficulty breathing in and out.



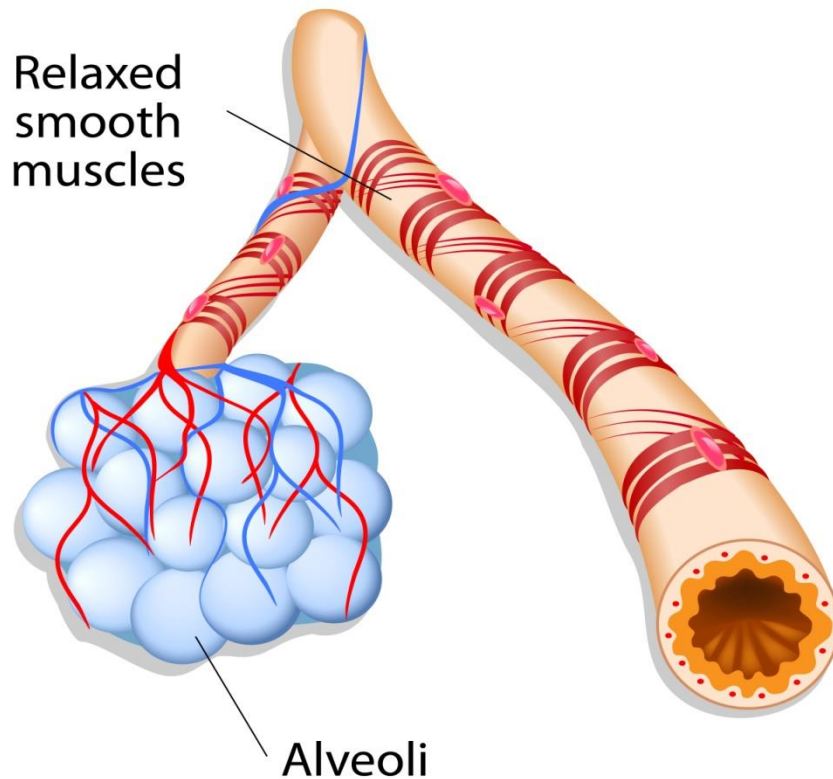
normal bronchial tube



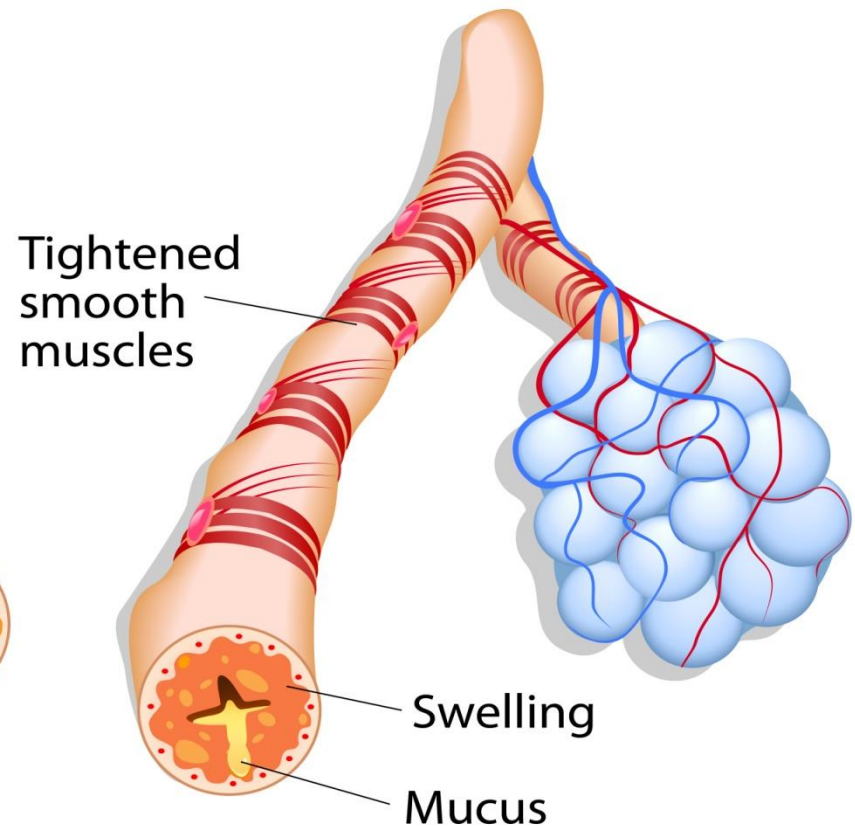
inflamed bronchial tube

BRONCHOCONSTRICTION (ASTHMA)

Normal bronchial tube



**Inflamed bronchial tube
of an asthmatic**



Potential triggering factors:

- **Environmental allergies.**
- **Food allergies.**
- **Food additives and preservatives.**
- **Exercise.**
- **Cold weather.**
- **Pollution.**
- **Smoking.**

- **Infections.**
- **Emotional stress.**
- **Chemicals.**
- **Nutritional deficiencies, especially vitamin B6, selenium and magnesium.**

Restricted Foods:

- **Processed foods.**
- **Allergenic foods.**
- **Fried and refined foods.**
- **Dried or smoked foods.**
- **Food additives and preservatives: MSG (monosodium glutamate), tartrazine, sulfites, and any food colorings.**

- Foods high in **solanine**: tomatoes, eggplants and potatoes. Solanine worsens inflammation, triggering asthmatic attack.
- Frozen or extremely cold foods.
- Dairy products.
- Ice cream.
- Red meats.

Recommended Foods:

- **Plenty of water: at least 2 liters a day. Dehydration may aggravate asthma.**
- **Fresh fruits and vegetables, except those that have been discovered to be sources of allergies.**
- **Foods high in flavonoids: berries. Flavonoids are powerful antioxidants and anti-inflammatory agents.**

- Foods high in **carotenoids**: gac, carrots, yellow corn, apricots, sweet potatoes, and papaya.
- Fish. They contain Omega-3, which reduce inflammation.
- Flaxseeds.
- Chia.
- Hemp seeds.
- Walnuts.
- Garlic.
- Onions.

- **Soy foods. Genistein is an isoflavone found in soy that may help with asthma.**
- **Cayenne pepper. The active ingredient in cayenne pepper is capsaicin, which may desensitize the airways by blocking the release of substance-P.**

Recommended Supplements:

- **French Maritime Pine Bark Extract: 100 – 200 mg a day.**
- **Grape seed extract: 100 – 200 mg a day.**
- **Omega-3: 2 – 3 grams day.**
- **Vitamin C: 2 – 3 grams a day.**

- **Magnesium:** 200 – 400 mg a day.
- **Vitamin B6:** 25 – 100 mg a day.
- **Aloe Vera juice:** $\frac{1}{4}$ - $\frac{1}{2}$ cup three times a day.
- **Quercetin:** 500 – 1000 mg a day.
- **Lycopene:** 10 - 40 mg a day. It helps with exercise-induced asthma.

- **Ginkgo biloba:** 120 -240 mg a day.
- **Boswellia extract:** 250 – 500 mg a day.
- **Selenium:** 200 – 400 mcg a day.
- **Multivitamin-Multimineral:** a high-potency product.

Homework:

- **1) Describe the 4 food supplements that may be beneficial for people with heart diseases and high blood pressure.**
- **2) Describe the restricted foods in people with asthma.**

