

# حقيبة تعليمية بعنوان

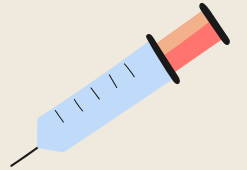


## Principles of Internal Medical Surgery

مبادئ الطب الباطني الجراحي

أعداد

م.د. آمال فاضل غانم



|                                           |                     |
|-------------------------------------------|---------------------|
| الجامعة التقنية الجنوبية                  | اسم الجامعة         |
| المعهد التقني الطبي / البصرة              | الكلية / المعهد     |
| 2026 – 2025                               | العام الدراسي       |
| طلبة المرحلة الثانية / قسم تقنيات التخدير | الفئة المستهدفة     |
| م.د. آمال فاضل غانم                       | تدريسي المادة       |
| مدرس                                      | اللقب العلمي        |
| 30 أسبوع                                  | مدة المقرر          |
| 2 ساعة اسبوعياً                           | مدة البرنامج        |
|                                           | تاريخ اعداد الحقيبة |

# دليل الحقيبة

## اسم الحقيبة :- مبادئ الطب الباطني الجراحي Principles of Internal Medical Surgery

الهدف العام من الحقيبة :- تهدف هذه الحقيبة التعليمية الى تعريف الطلبة على مجموعة من الامراض المهمة التي تصيب الانسان لغرض تهيئة طلبة قسم تقنيات التخدير للتعامل مع الحالات المرضية في صالات العمليات كتقني تخدير وكذلك في مراكز العناية المركزة بمهارة عالية ، وقد تم تصميم هذه الحقيبة بناءً على منهج القسم والمحاضرات المرفقة طياً في هذه الحقيبة.

الفئة المستهدفة :- طلبة المرحلة الثانية في قسم تقنيات التخدير.

المنفذون :- تدريسي المادة .

مدة البرنامج :- 30 أسبوع ( كورس أول ، كورس ثاني ).

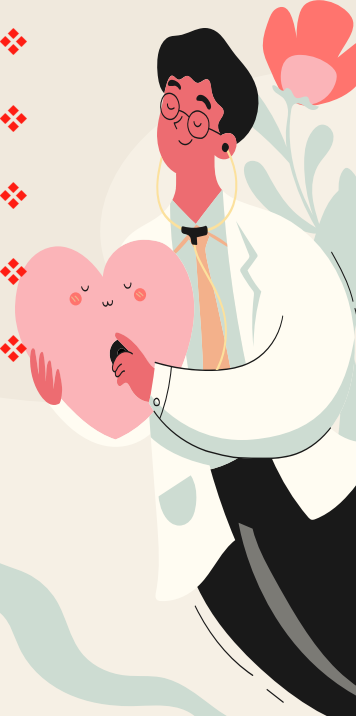
عدد ساعات المحاضرة الاسبوعية :- 2 ساعة .

# محتويات منهج مقرر الطب الباطني الجراحي الفصل الاول

| W | Topics Covered                   | W  | Topics Covered                   |
|---|----------------------------------|----|----------------------------------|
| 1 | Cardiovascular diseases          | 9  | Pneumonia and pneumothorax       |
| 2 | Congenital heart diseases        | 10 | Pleural effusion .and chest tube |
| 3 | Heart failure                    | 11 | Thoracotomy and bronchoscopy.    |
| 4 | Blood pressure                   | 12 | Renal failure.                   |
| 5 | Angina and myocardial infarction | 13 | Blood diseases                   |
| 6 | Arrhythmia.                      | 14 | Liver diseases and jaundice.     |
| 7 | Bronchitis                       | 15 | Gastro intestinal diseases.      |
| 8 | Asthma                           |    |                                  |

# إرشادات الطلبة

- ❖ الالتزام بوقت المحاضرة.
- ❖ الالتزام بالهدوء اثناء المحاضرة.
- ❖ اغلاق الهاتف النقال قبل الدخول الى قاعة المحاضرة.
- ❖ تقبل دورك في المشاركة وطرح الاسئلة.
- ❖ التفاعل داخل المحاضرة بطريقة علمية وحضارية.
- ❖ تدوين الملاحظات والانتباه لتحديد مواعيد الاختبارات اليومية او اي أنشطة مطلوبة .



# الانشطة واساليب التدريس المتبعة

**عروض تقديمية :-** استخدام الشرائح لعرض المحاضرة بطريقة سلسة ومفهومة  
**اسئلة العصف الذهني :-** تتضمن محاولة جذب تفكير الطلبة وتحديد مسار افكارهم حول  
المحاضرة ومحتوياتها وتكون الاسئلة اما في مستقبل المحاضرة او حتى اثناء عرض الشرائح.  
**المحاضرات التفاعلية :-** تشمل عرض فيديوهات ومناقشتها مع الطلبة ضمن مجموعات .  
**واجبات بحثية على هيئة تقارير قصيرة :-** هدفها اطلاع الطلبة على موضوع المحاضرة بصورة  
اوسع .

**الاختبارات بانواعها (شفوية و ورقية ) :-** تكون بصورة اسبوعية بطريقة معلومة او مفاجئة  
لضمان المراجعة الاسبوعية للمحاضرات من قبل الطلبة للتحضير للامتحانات الفصلية .



# الوسائل التعليمية

- السبورة .
- شاشة عرض بواسطة جهاز الكمبيوتر المحمول Lap Top .
- الصف الالكتروني Class room .



# المحاضرة الاولى

## Cardiovascular diseases

م.د. آمال فاضل غانم



# مسار المحاضرة

| الوقت    | العنوان الفرعي                                                               |
|----------|------------------------------------------------------------------------------|
| 10 دقيقة | تمهيد المحاضرة                                                               |
| 30 دقيقة | Part 1 : Cardiovascular diseases                                             |
| 5 دقيقة  | نشاط جماعي :- اسئلة حول تشريح وفسلجة جهاز الدوران ( القلب والاوعية الدموية ) |
| 30 دقيقة | Part 2 : Causes of heart disease and B.V.                                    |
| 15 دقيقة | عرض فيديو توضيحي حول فسلجة عمل القلب الطبيعي وكيفية تغيرها اثناء امراض القلب |
| 5 دقيقة  | Rest                                                                         |
| 15 دقيقة | مراجعة المحاضرة مع توضيح واجب المحاضرة 2                                     |
| 10 دقيقة | حضور الطلبة وخاتمة المحاضرة                                                  |

## اهداف المحاضرة

- ❖ المحاضرة مدخل تعريفى لامراض جهاز الدوران ( القلب و الاوعية الدموية ).
- ❖ تذكير الطلبة بتشريح القلب والاوعية الدموية وانواع الانسجة المكونة لهذه الاعضاء وملائمة كل نوع نسيجي للمكان المتواجد فيه وحسب الوظيفة الموكلة للعضو ضمن الجهاز.



# Lecture Titles

# عناوين المحاضرة

- ✓ المقدمة .
- ✓ تعريف القلب.
- ✓ تعريف الاوعية الدموية .
- ✓ انواع الاوعية الدموية ( الشرايين والاوردة والاعية الدموية الشعرية ) .
- ✓ تعريف الدم واللف .
- ✓ الخلايا الدموية ( خلايا الدم البيض والاحمر والصغيات الدموية ) .
- ✓ عرض فيديو لعمل عضلة القلب وجهاز الدوران .
- ✓ مدخل لامراض القلب والاعية الدموية (CVD) Cardiovascular disease
- ✓ استعراض بعض الامراض بشكل تعداد وكمدخل للمحاضرات القادمة لامراض القلب التفصيلية.

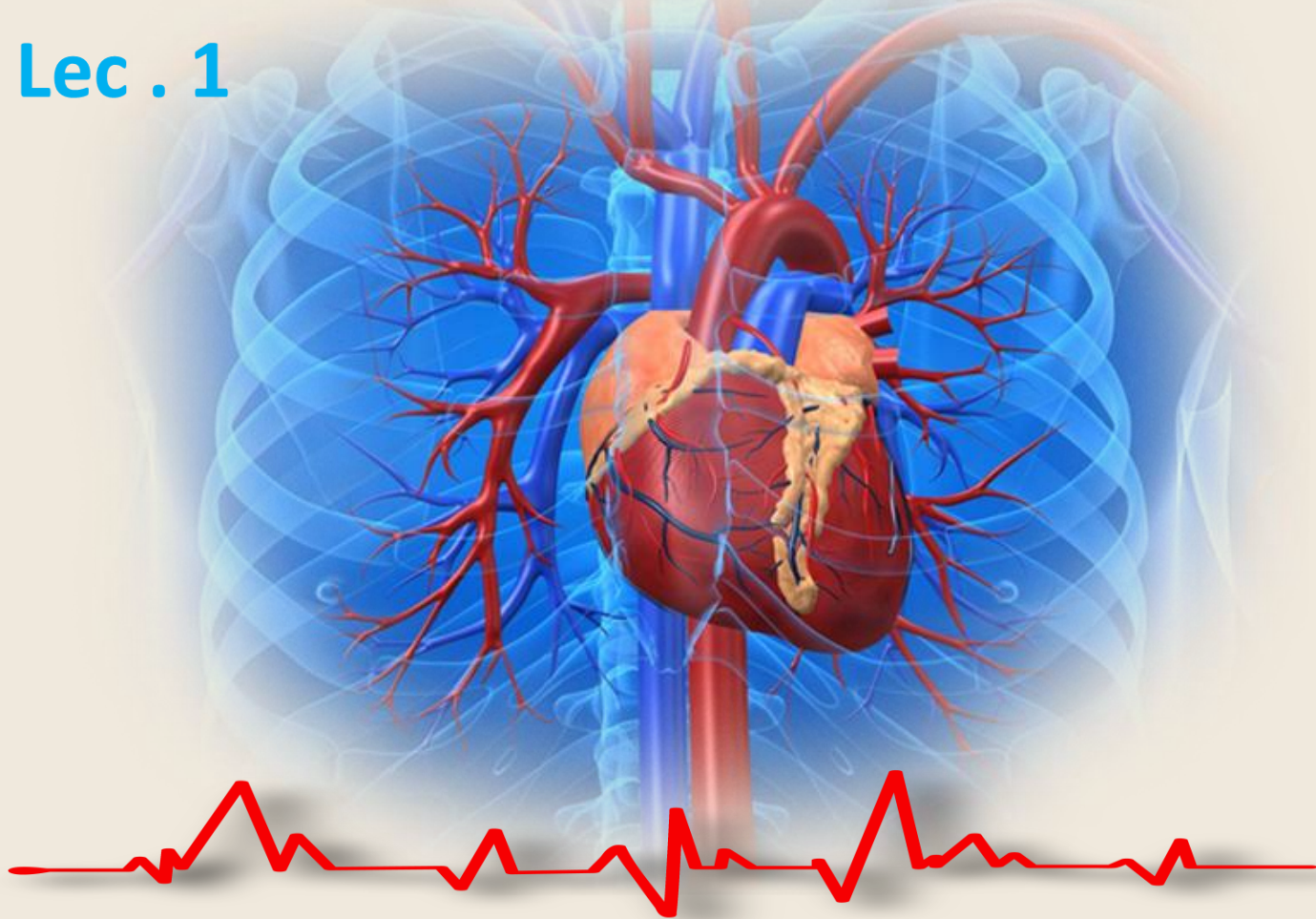


# استعراض محاضرة رقم 1



# Cardiovascular disease

## Lec . 1





## INTRODUCTION

The circulatory system, also known as the cardiovascular system, is a network of organs and vessels that circulate blood throughout the body.

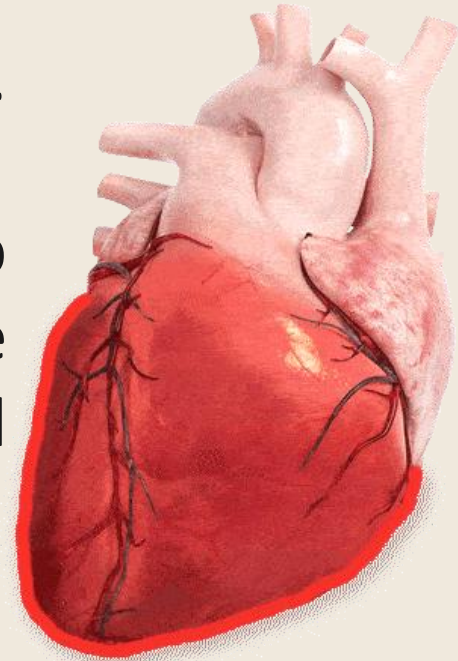
Its primary function is to deliver oxygen, nutrients, and hormones to cells and remove waste products.

This system is crucial for maintaining overall health and proper bodily function.

## INTRODUCTION

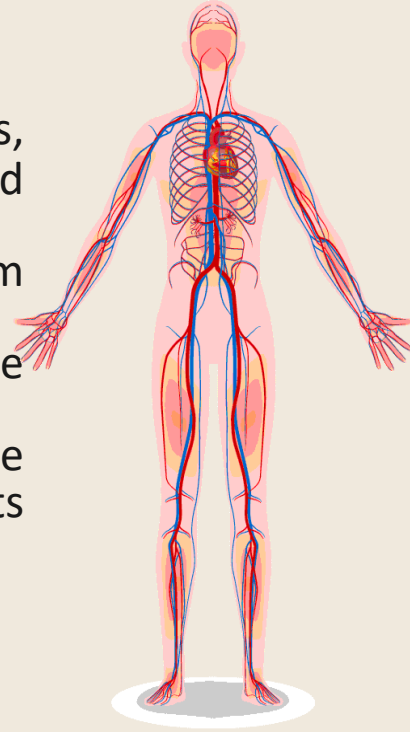
The circulatory system or cardiovascular system CS. Consist of :-

- **Heart:** The central pump of the system, responsible for propelling blood through the vessels.



# INTRODUCTION

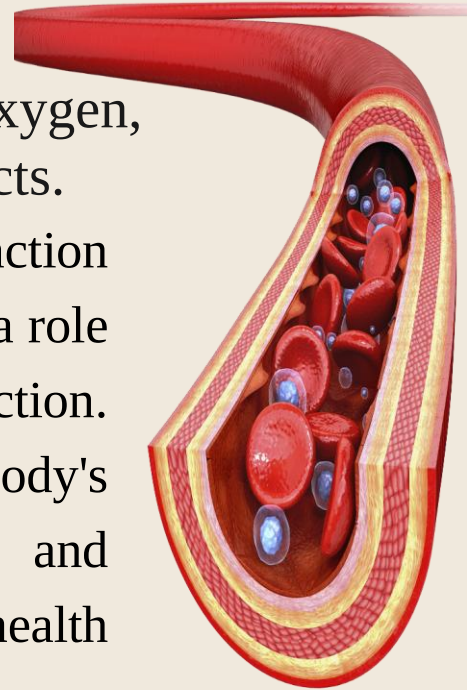
- **Blood Vessels:** A network of arteries, veins, and capillaries that carry blood to and from the heart and throughout the body.
- **Arteries:** Carry oxygenated blood away from the heart.
- **Veins:** Carry deoxygenated blood back to the heart.
- **Capillaries:** Tiny vessels where the exchange of oxygen, nutrients, and waste products occurs between blood and tissues.



## INTRODUCTION

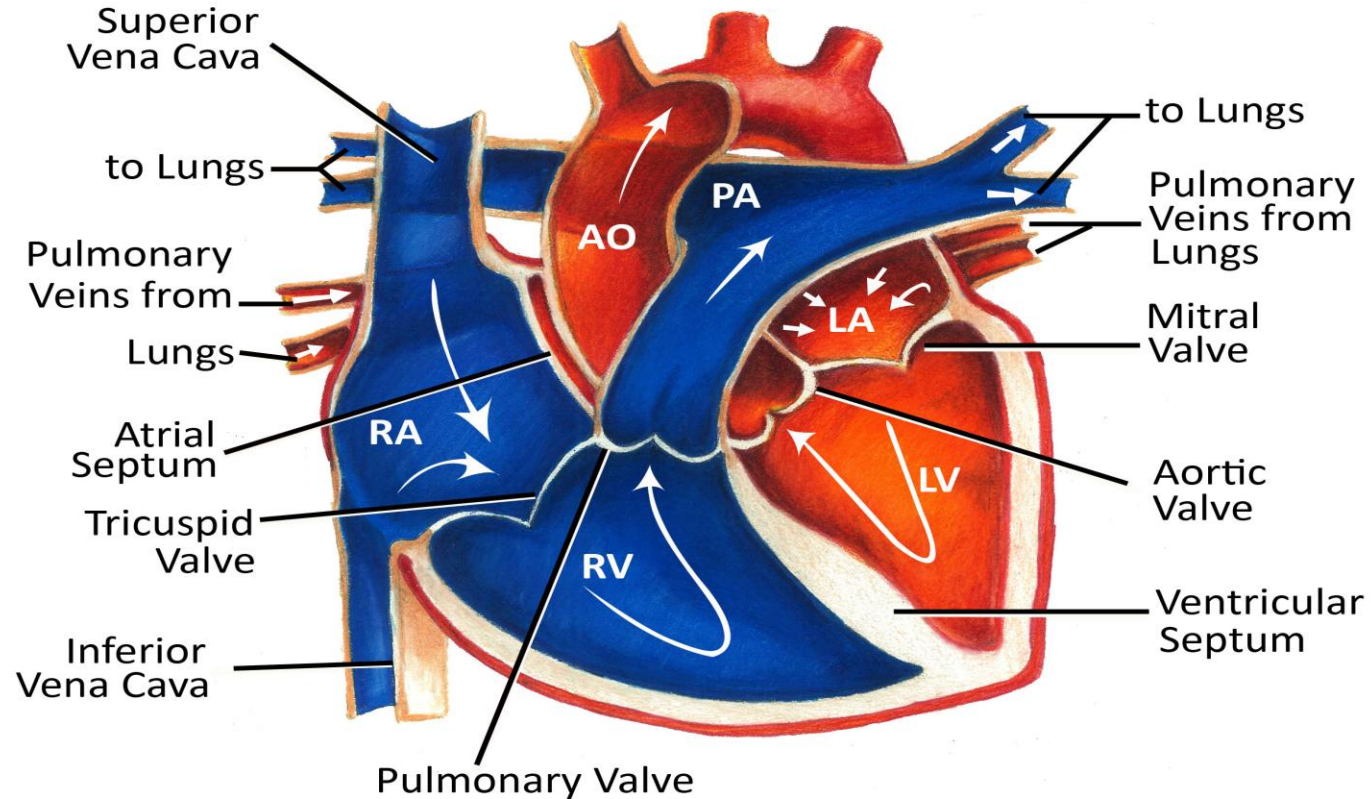
**Blood:** The fluid that carries oxygen, nutrients, hormones, and waste products.

The circulatory system works in conjunction with the lymphatic system, which plays a role in fluid balance and immune function. Together, these systems ensure the body's cells receive the necessary resources and eliminate waste products, according to health resources.

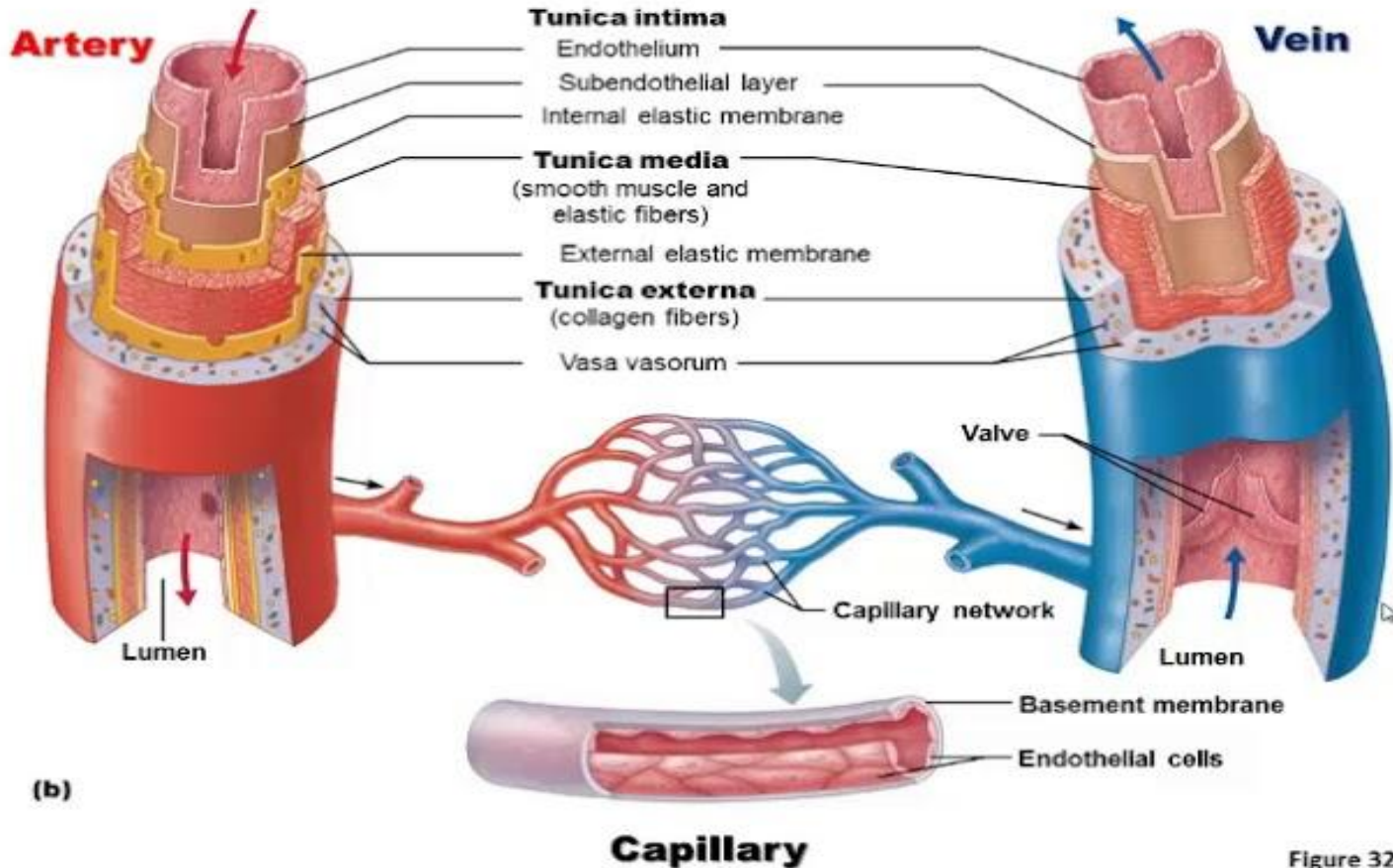


# Heart Anatomy

## Normal Heart



# Blood Vessels Anatomy



# BLOOD CELLS



Erythrocytes



Platelets



Leukocyte



Monocyte



Lymphocyte



Eosinophil



Basophil

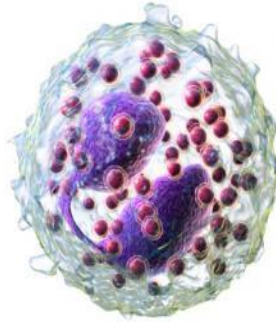


Neutrophil

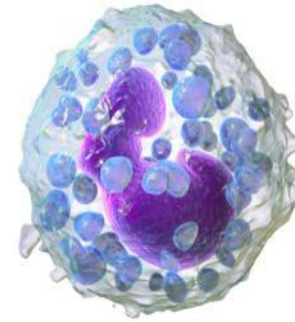
# White Blood Cells



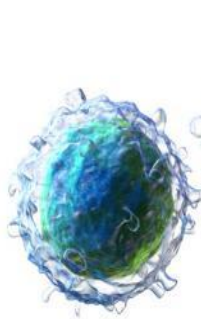
monocyte



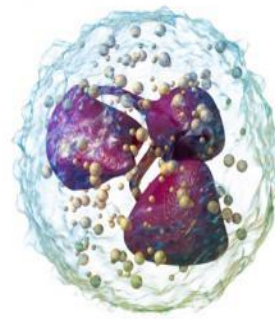
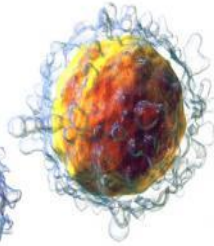
eosinophil



basophil



lymphocytes



neutrophil

# فیدو یوضأ أأزأ أهاز الدوران و وظیفأ كل أزأ منه





# Cardiovascular disease



# Cardiovascular disease



## Cardiovascular disease (CVD)

: is a general term for conditions affecting the heart or blood vessels.

It's usually associated with a build-up of fatty deposits inside the arteries (atherosclerosis) and an increased risk of blood clots.

It can also be associated with damage to arteries in organs such as the brain, heart, kidneys and eyes.

CVD is one of the main causes of death and disability in worldwide, but it can often largely be prevented by leading a healthy lifestyle.

# The Most Common Heart Diseases

- Congenital heart disease.
- Coronary artery disease .
- Ischemic heart disease .
- Pulmonary heart disease .
- Valvular heart disease .
- Pericardial disease.
- Heart failure.
- Arrhythmias.

# The Most Common Blood Vessels Diseases

- Arteriosclerosis and atherosclerosis.
- High blood pressure (hypertension).
- Stroke.
- Aneurysm.
- Peripheral arterial disease.
- Vasculitis.
- Venous insufficiency.
- Venous thrombosis.
- Varicose veins

# Any Question





نهاية محاضرة رقم 1

# المحاضرة الثانية الجزء الاول

## *Congenital Heart Disease*

م.د. آمال فاضل غانم



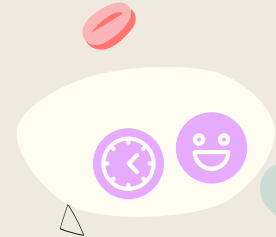
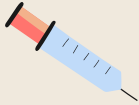
# مسار المحاضرة

| العنوان الفرعي                                                                                                      | الوقت    |
|---------------------------------------------------------------------------------------------------------------------|----------|
| تمهيد المحاضرة                                                                                                      | 10 دقيقة |
| Part 1 : <i>Congenital Heart Disease</i>                                                                            | 30 دقيقة |
| نشاط جماعي :- اسئلة حول امراض القلب الولادية ومدى معلومات الطلبة حول موضوع المحاضرة                                 | 5 دقيقة  |
| Part 2 : <i>The Types of Congenital Heart Disease</i>                                                               | 30 دقيقة |
| شرح انواع امراض القلب الولادية ، اسبابها ، علاماتها ، طرق تشخيصها ، اهم العلاجات الطبية والجراحية وطرق الوقاية منها | 15 دقيقة |
| Rest                                                                                                                | 5 دقيقة  |
| مراجعة المحاضرة مع توضيح واجب المحاضرة 2                                                                            | 15 دقيقة |
| حضور الطلبة وخاتمة المحاضرة                                                                                         | 10 دقيقة |

## اهداف المحاضرة الثانية الجزء الاول



الهدف الرئيسي هو تعريف امراض القلب الولادية ونوعيتها  
الرئيسين :- الازرقاقي وغير الازرقاقي كيفية الوقاية منها .  
وهذا الجزء يمهد للجزء الثاني من المحاضرة الذي يتعرض لكل  
انواع امراض القلب والشرابين الولادية .



# امتحان يومي بالمحاضرة السابقة

الامتحان اليومي يكون بثلاث نماذج مختلفة  
وللدراستين الصباحية والمسائية ،  
حيث تكون الاسئلة شاملة لكل المادة تقريباً  
والاختيار يكون بشكل عشوائي.



# نماذج اسئلة الامتحان اليومي



Quiz 1

C

12/10/2025

Name :-

Types of Blood Vessels are \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Cardiovascular disease (CVS) is a general term  
for \_\_\_\_\_

The Most Common Heart Diseases \_\_\_\_\_

Quiz 1

A

12/10/2025

Name :-

- The circulatory system, also known as \_\_\_\_\_.
- The Most Common Heart Diseases \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- The primary function of the circulatory system is \_\_\_\_\_

Quiz 1

B

12/10/2025

Name :-

- Heart is \_\_\_\_\_
- The Most Common Heart Diseases \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- The circulatory system works in conjunction with the  
\_\_\_\_\_,  
which plays a role in fluid balance and \_\_\_\_\_ function.

# استعراض محاضرة رقم 2 الجزء الاول



وزارة التعليم العالي والبحث العلمي

الجامعة التقنية الجنوبية

المعهد التقني الطبي – البصرة

قسم تقنيات التخدير

[Anesthes.bti@stu.edu.iq](mailto:Anesthes.bti@stu.edu.iq)



E.Mail : [Presidency@stu.edu.iq](mailto:Presidency@stu.edu.iq)

العراق – البصرة – طريق الزبير العام – مقابل المدينة الرياضية

# Principles of Internal Medical Surgery

**Lecturer**

**Dr . Amaal Fadhil Ghanim**

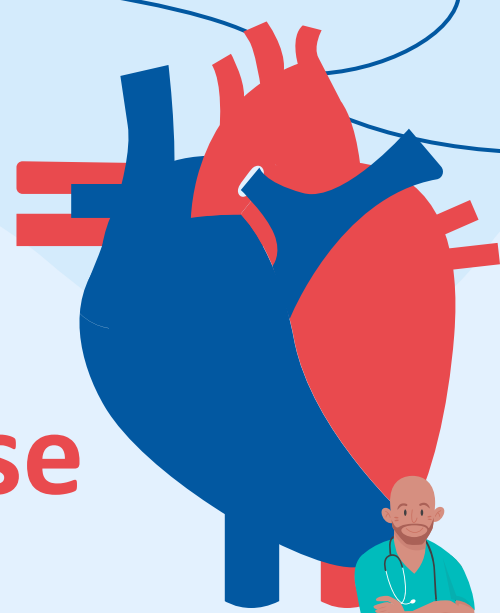
**Email :** [Dr.amaal.f.g@stu.edu.iq](mailto:Dr.amaal.f.g@stu.edu.iq)

**The Second Stage**

2026 - 2025

## Lec. 2 Part 1

# Congenital Heart Disease



# Congenital Heart Disease (CHD)

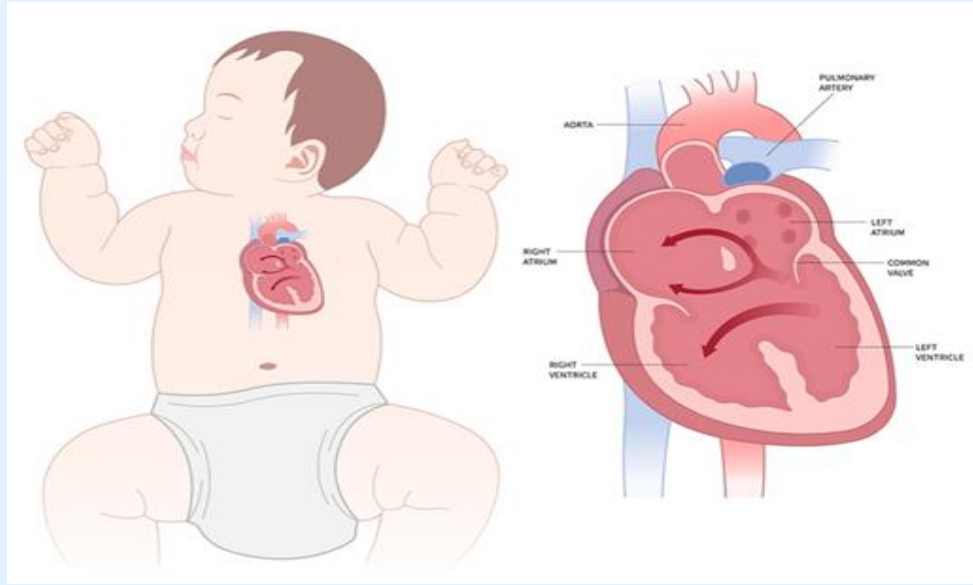
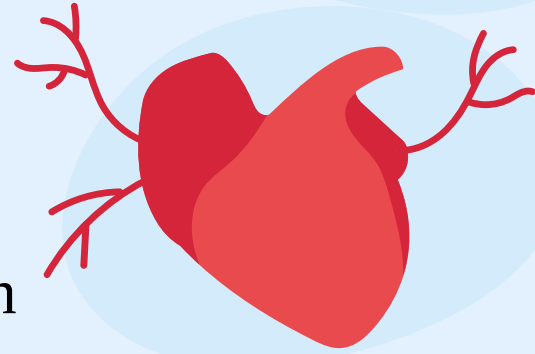


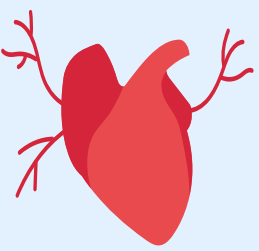
Congenital heart disease (CHD) is a problem with how the heart forms before birth. Some issues are more severe than others, but all of them prevent normal blood flow through heart and beyond. Advances in diagnosis and treatment help most children with a CHD live to become adults.



# CHD

Congenital heart disease (present at birth) can affect many different parts of heart. It can be mild or severe.

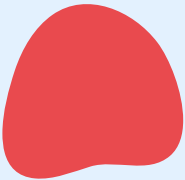




## Congenital Heart Disease (CHD) is a problem with heart's structure

- ❑ CHD is present at birth.
- ❑ These issues which keep blood from flowing normally may include:
  - A hole in the heart wall.
  - Issues with the blood vessels (too many or too few, blood flowing too slowly, to the wrong place or in the wrong direction).
  - Problems with heart valves that control blood flow.





# CHD



- Some cases of CHD are simple and may not cause any symptoms.
- But others can be life-threatening and require treatment in infancy.

Healthcare providers can detect heart defects early (before or shortly after birth). But sometimes, people don't get a CHD diagnosis until childhood, adolescence or adulthood.

A decorative red line graphic in the bottom left corner, consisting of several loops and curves.

# The Types of Congenital Heart Disease

There are two main groups of CHD:

**1-Cyanotic** (low oxygen in the blood) congenital heart disease.

**2-Acyanotic** (blood oxygen level is acceptable) congenital heart disease.



A person wearing a green medical scrub top is holding a red heart-shaped object against their chest. The background is light blue with a large red circle on the right side.

# **Cyanotic Congenital Heart Disease**



# Cyanotic Congenital Heart Disease



These heart anomalies reduce the amount of oxygen that heart can deliver to the rest of the body.

Babies born with cyanotic congenital heart disease usually have low levels of oxygen and need surgery.



# Cyanotic CHD include:



## Left Heart Obstructive Lesions:

These reduce blood flow between the heart and the rest of the body (systemic blood flow). Examples include



**Hypoplastic Left Heart Syndrome (HLHS)** :- when the heart is too small on the left side .



**Interrupted Aortic Arch** :- aorta is incomplete.

# فيديو توضيحي Hypoplastic Left Heart Syndrome (HLHS)



# Cyanotic CHD include:

## Right Heart Obstructive Lesions

These reduce blood flow between the heart and the lungs (pulmonary blood flow).

Examples include :-

Tetralogy of Fallot (a group of four anomalies).

Ebstein's Anomaly. the valve that separates the top and bottom right heart chambers does not form correctly.

Pulmonary Atresia . the pulmonary valve fails to form, completely blocking blood flow from the heart's right ventricle to the lungs.

Tricuspid Atresia .valves in the right side of the heart don't develop correctly.

# Cyanotic CHD include:



## Mixing Lesions

The body mixes systemic and pulmonary blood flow. One example is **Transposition of the Great Arteries (TGA)**, which means the two main arteries leaving the heart are in the wrong place.



Another is **Truncus Arteriosus**, when the heart has only one main artery, instead of two, to carry blood to the body.

# Truncus Arteriosus

فيديو توضيحي



Truncus Arteriosus



# A cyanotic Congenital Heart Disease

This involves an issue that makes blood pump through the body in an abnormal way.  
For example:

- **Hole in the heart:** One of the heart's walls can have an abnormal opening.

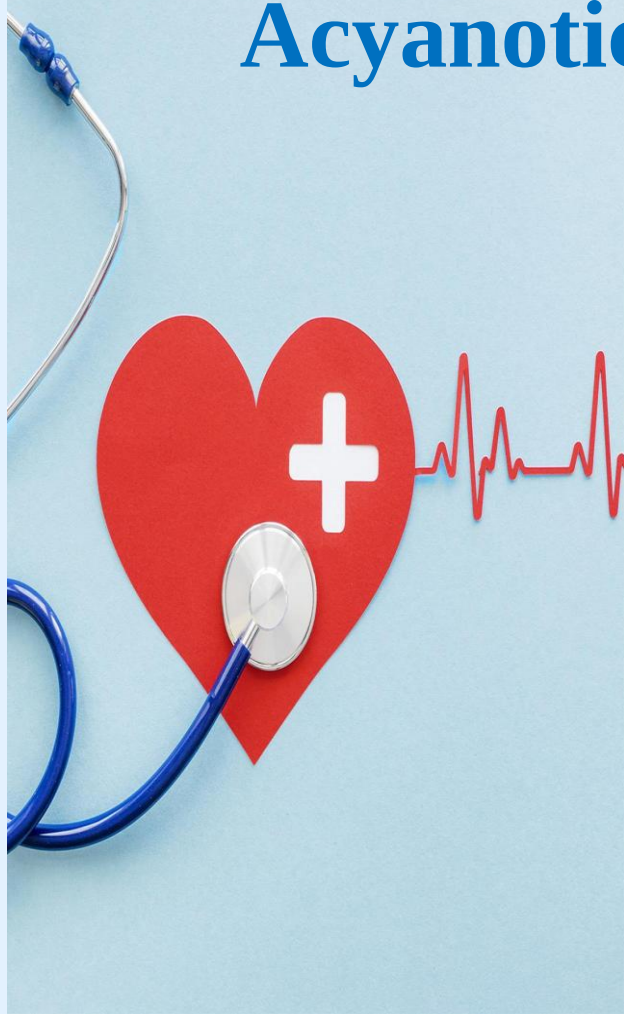
Depending on the location of the hole, this may be called **Atrial Septal Defect (ASD)** , **Atrioventricular Canal**, **Patent Ductus Arteriosus (PDA)** or **Ventricular Septal Defect (VSD)**.



# Acyanotic Congenital Heart Disease

**Problem with the Aorta:** The [aorta](#) is the main artery that carries blood away from the heart to the rest of the body. It can be too narrow ([Aortic Coarctation](#)).

**Or** the aortic valve (which opens and closes to regulate blood flow) may be restricted in opening or have only two flaps instead of three (called bicuspid aortic valve).

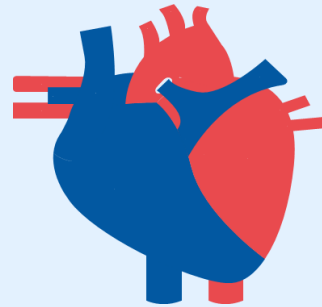
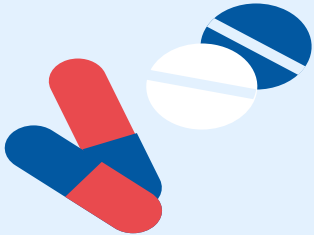


# Acyanotic Congenital Heart Disease

## Problem with the pulmonary artery:

The **Pulmonary Artery** carries blood from the right side of the heart to the lungs to get oxygen.

If this artery is too narrow, it's called **Pulmonary Artery Stenosis**.



# Symptoms of CHD



# Symptoms of CHD

Serious congenital heart defects usually are found soon after birth or during the first few months of life. Symptoms could include:

- Pale gray or blue lips, tongue, or fingernails.
- Rapid breathing.
- Swelling in the legs, belly or areas around the eyes.
- Shortness of breath during feedings, leading to poor weight gain.



# Symptoms of CHD

Less-serious congenital heart defects may not be found until later in childhood.

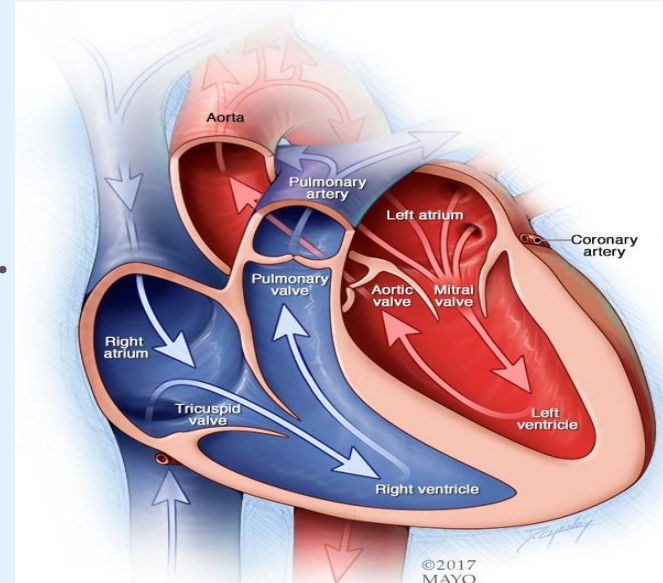
Symptoms of congenital heart defects in older children may include

- Easily getting short of breath during exercise or activity.
- Getting tired very easily also during exercise or activity.
- Fainting during exercise .
- Swelling in the hands, ankles or feet.

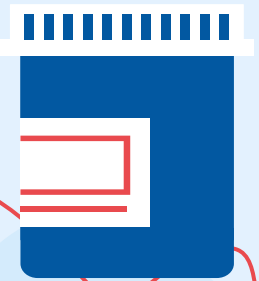
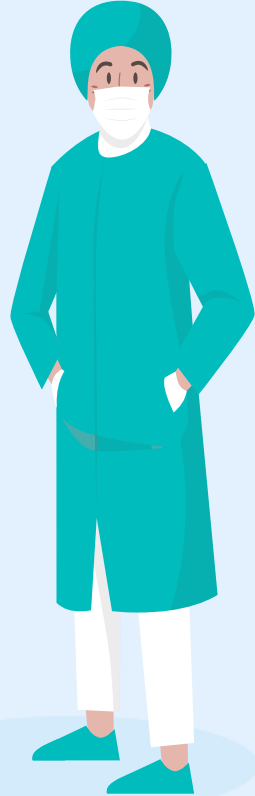


# The signs and symptoms of congenital heart defects vary widely, depending on:

- ❖ Age.
- ❖ The number of heart issues (a person can be born with more than one).
- ❖ The severity of the condition.
- ❖ The type of congenital condition.



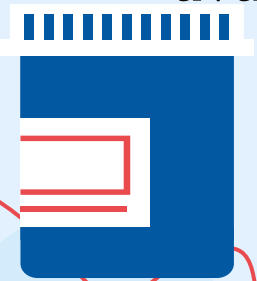
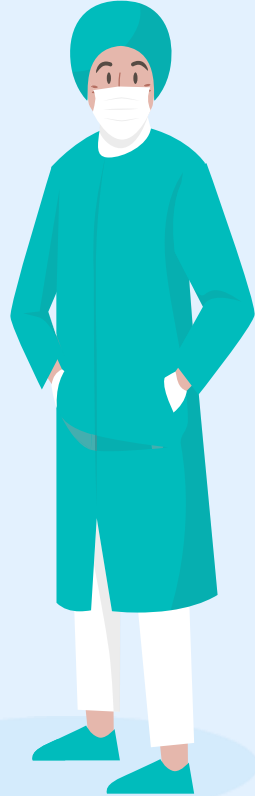
# Cause Of Congenital Heart Disease



# Causes of CHD

The exact cause of most congenital heart defects is unknown. But some risk factors have been identified.

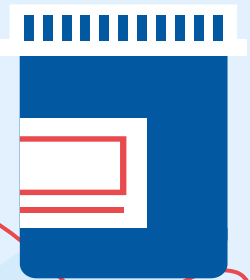
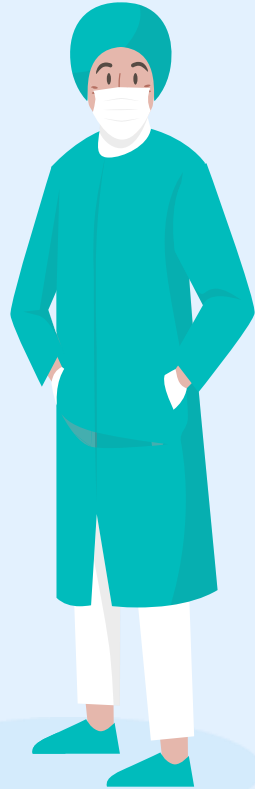
- 1. Rubella, also called German measles.** Having rubella during pregnancy can cause changes in a baby's heart development. A blood test done before pregnancy can determine if there is immune to rubella. A vaccine is available for those who aren't immune.



# Causes of CHD

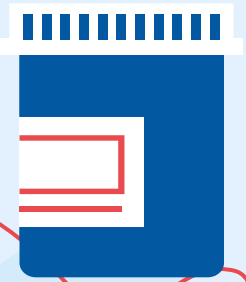
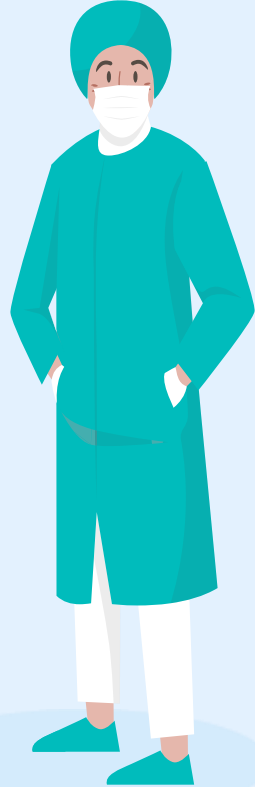
**2. Diabetes.** Careful control of blood sugar before and during pregnancy can reduce the risk of congenital heart defects in the baby.

Diabetes that develops during pregnancy is called gestational diabetes, It generally doesn't increase a baby's risk of heart defects.



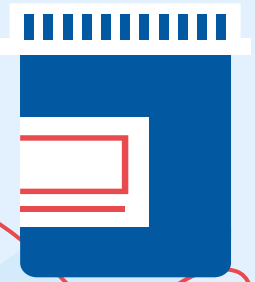
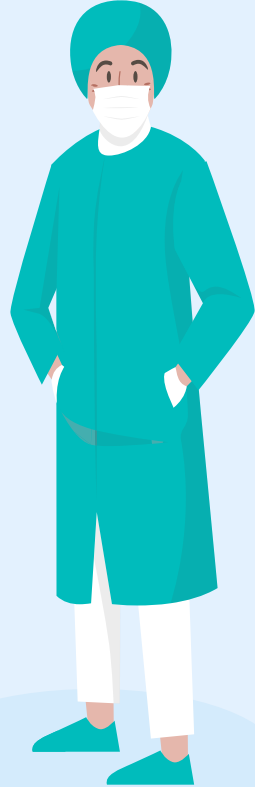
# Causes of CHD

**3. Some Medicines.** Taking certain medicines during pregnancy can cause congenital heart disease and other health problems present at birth.



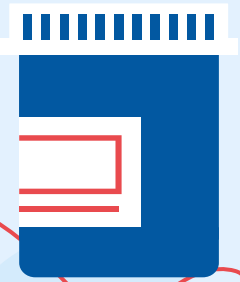
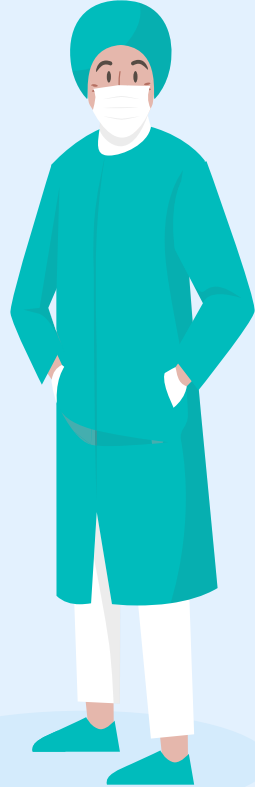
# Causes of CHD

**4. Drinking alcohol during pregnancy.** Drinking alcohol during pregnancy increases the risk of congenital heart defects in the baby.



# Causes of CHD

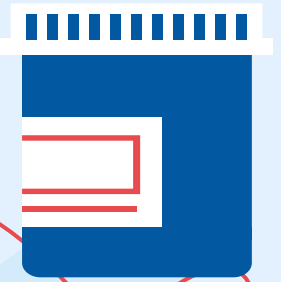
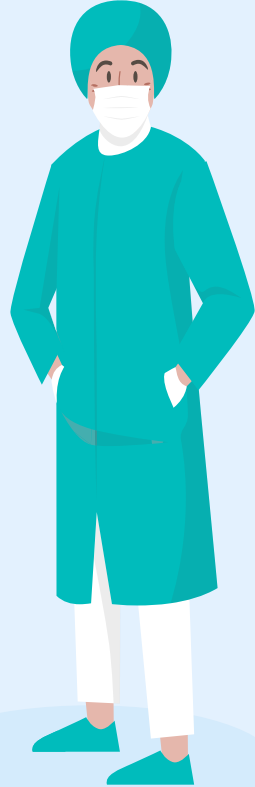
**5. Smoking.** Smoking during pregnancy increases the risk of congenital heart defects in the baby.

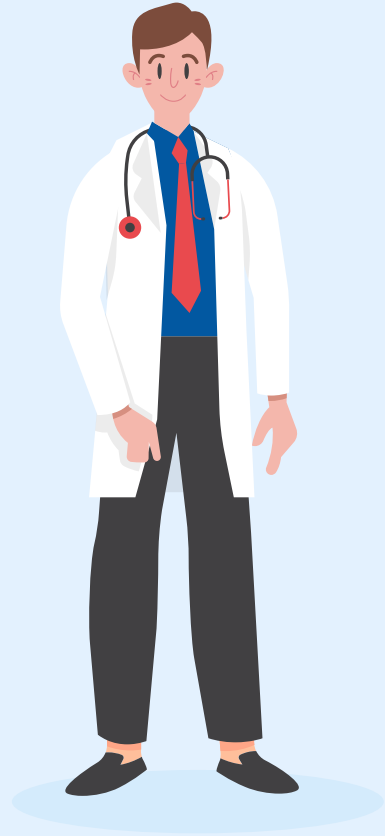


# Causes of CHD

**6. Genetics.** Congenital heart defects appear to run in families, which means they are inherited.

Changes in genes have been linked to heart problems present at birth. For instance, people with Down syndrome are often born with heart conditions.





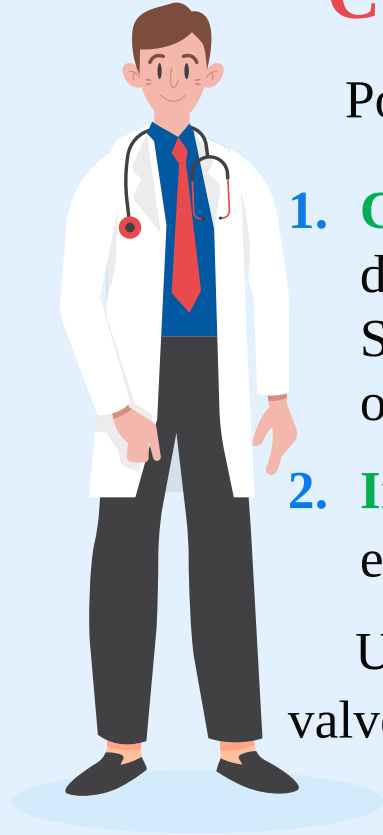
# Complications

# Complications

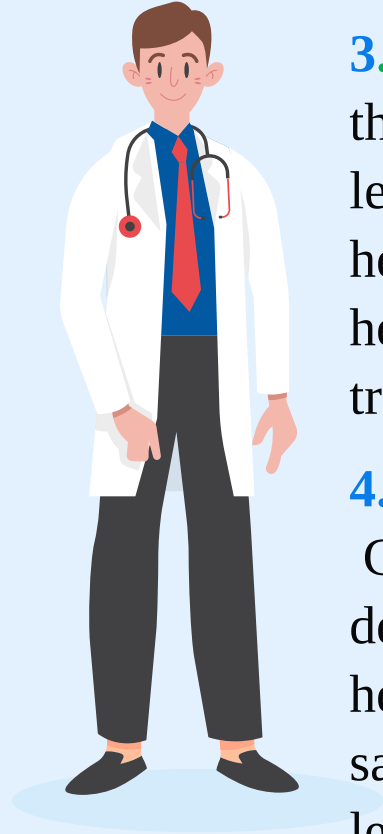
Possible complications of a congenital heart defect include:

1. **Congestive heart failure** :- This serious complication may develop in babies who have a severe congenital heart defect. Symptoms of congestive heart failure include rapid breathing, often with gasping breaths, and poor weight gain.
2. **Infection of the lining of the heart and heart valves** :-called endocarditis.

Untreated, this infection can damage or destroy the heart valves or cause a stroke.



# Complications



**3. Irregular heartbeats, called arrhythmias:-** Scar tissue in the heart from surgeries to fix a congenital heart condition can lead to changes in heart signaling. The changes can cause the heart to beat too fast, too slow or irregularly. Some irregular heartbeats may cause stroke or sudden cardiac death if not treated.

**4. Slower growth and development (developmental delays):-** Children with more-serious congenital heart defects often develop and grow more slowly than do children who don't have heart defects. They may be smaller than other children of the same age. If the nervous system has been affected, a child may learn to walk and talk later than other children.

# Complications

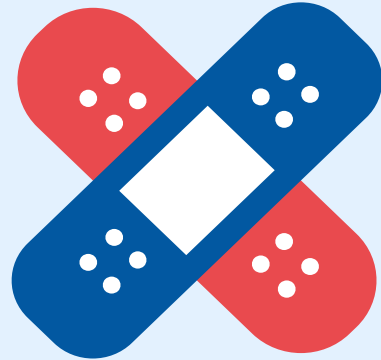
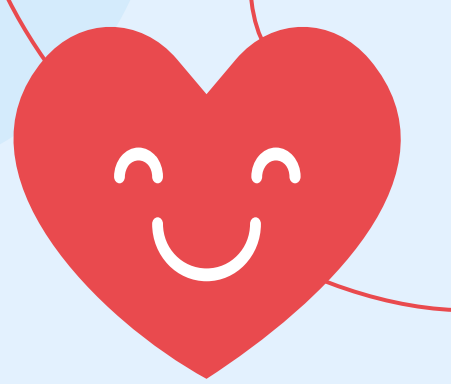


**5. Stroke:-** Although uncommon, a congenital heart defect can let a blood clot pass through the heart and travel to the brain, causing a stroke.

**6. Mental health disorders:-** Some children with congenital heart defects may develop anxiety or stress because of developmental delays, activity restrictions or learning difficulties.



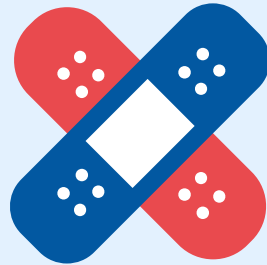
# Diagnosis of CHD



# Diagnosis of CHD

A healthcare provider finds a congenital condition before a baby is born. If finds anything unusual during a routine prenatal ultrasound, so the fetus may need further testing.

For example, a fetal echocardiogram uses harmless sound waves to create pictures of the fetal heart.

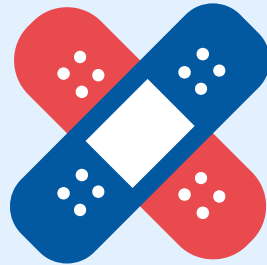


# Diagnosis of CHD

There are many tests use to diagnose congenital heart disease :-

These tests can help diagnose CHD in newborns, children or adults

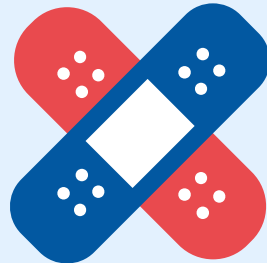
- **Physical exam:** During an exam, a listening to the heart for any abnormal sounds.
- **Chest X-ray:** A chest X-ray takes pictures of the inside of the chest to reveal any structural abnormalities.
- **Electrocardiogram:** Electrocardiogram (EKG or ECG) measures the electrical activity of the heart.



# Diagnosis of CHD

There are many tests use to diagnose congenital heart disease :-

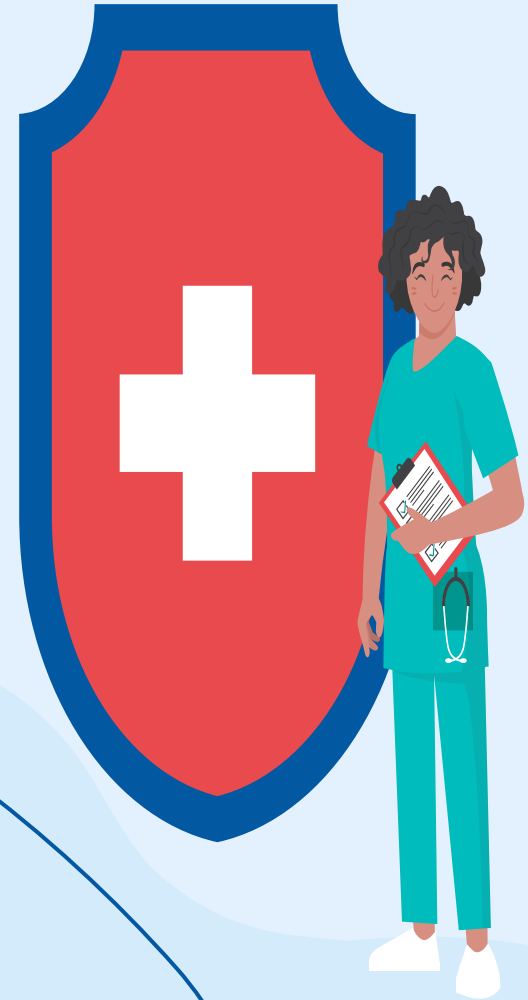
- **Echocardiogram:** An echocardiogram (echo) uses ultrasound to create images of the heart's valves and chambers.
- **Heart Catheterization:** can tell us how well the heart is pumping and circulating blood by performing a heart catheterization. It also call cardiac catheterization or coronary angiography.
- **Magnetic Resonance Imaging (MRI):** MRI for heart disease can create detailed pictures of the heart.



**Magnetic Resonance Imaging (MRI):**

**فيديو توضيحي**



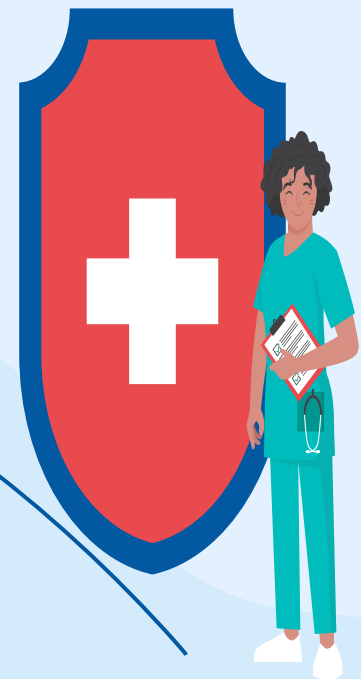


# Treatment of CHD

# Treatment of CHD

Congenital heart disease treatment may involve:

- A catheter procedure to place a plug into a defect.
- Medications to help heart work more efficiently or to manage blood pressure.
- A nonsurgical procedure to fix an issue using a closing device.
- Oxygen therapy, which provides higher levels of oxygen than normal room air would.
- Prostaglandin E1, which relaxes smooth heart muscle and can keep open the ductus arteriosus (a blood vessel that normally closes after birth), helping provide needed circulation.
- Surgery to repair an issue, open up blood flow or redirect blood.
- In severe cases, people need a heart transplant.

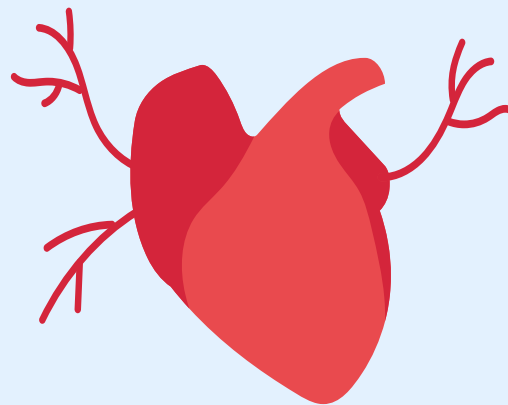
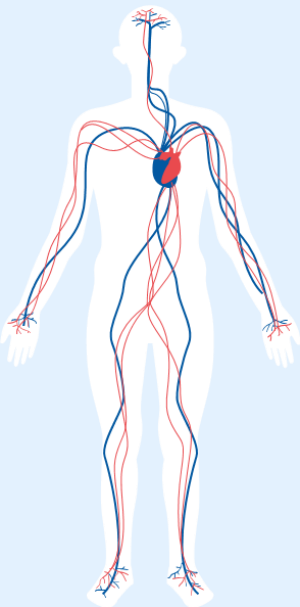


# Complications of the Treatment

Complications of congenital heart disease treatment vary by procedure.

They may include:

- Bleeding.
- Infection.
- Arrhythmia (abnormal heart rhythm).
- Scar tissue.
- Blood clots.
- Aneurysm (stretched blood vessel).
- Heart attack.
- Leaky heart valve.



# Complications of the Treatment

فيديو توضيحي

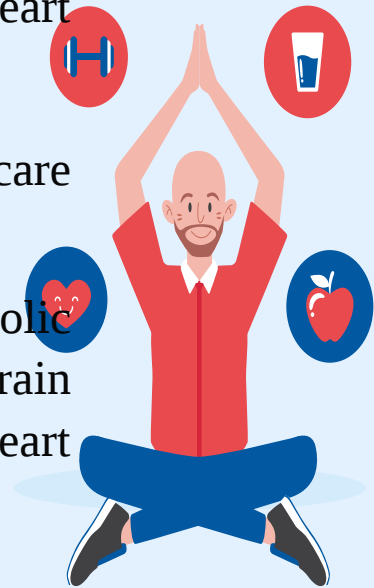


# Prevention

Because the exact cause of most congenital heart defects is unknown, it may not be possible to prevent these conditions. If person have a high risk of giving birth to a child with a congenital heart defect, genetic testing and screening may be done during pregnancy.

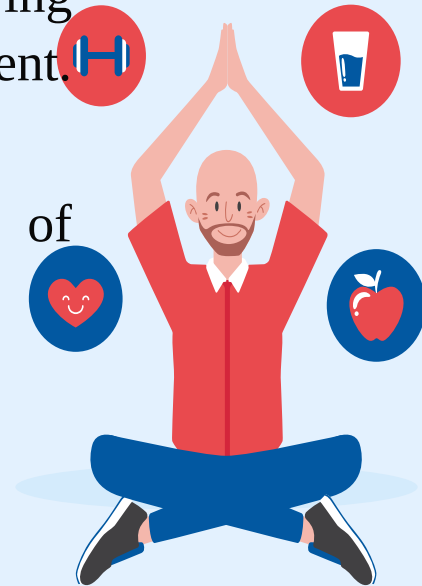
There are some steps can take to help reduce child's overall risk of heart problems present at birth such as:

- **Get proper prenatal care.** Regular checkups with a healthcare professional during pregnancy can help keep mom and baby healthy.
- **Take a multivitamin with folic acid.** Taking 400 micrograms of folic acid daily has been shown to prevent harmful changes in the baby's brain and spinal cord. It also may help reduce the risk of congenital heart defects as well.



# Prevention

- **Don't drink or smoke.** These lifestyle habits can harm a baby's health. Also avoid secondhand smoke.
- **Get a rubella vaccine.** Also called German measles, having rubella during pregnancy may affect a baby's heart development. Get vaccinated before trying to get pregnant.
- **Control blood sugar.** If mom have diabetes, good control of blood sugar can reduce the risk of congenital heart defects.



# Prevention

- **Avoid harmful substances.** During pregnancy, have someone else do any painting and cleaning with strong-smelling products.
- **Tell your care team about your medicines.** Some medicines can cause congenital heart defects and other health conditions present at birth. Tell your care team about all the medicines you take, including those bought without a prescription.



**To Be Continued...**

# Any Question ?



A decorative background featuring several white roses and sprigs of baby's breath flowers arranged on a light-colored surface. The roses are in various stages of bloom, and the baby's breath adds a delicate, airy touch to the composition.

**Thanks For Lisening**

**نهاية محاضرة رقم 2 الجزء الاول**

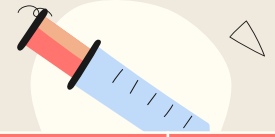
# المحاضرة الثانية الجزء الثاني

## *Congenital Heart Disease*

م.د. آمال فاضل غانم



# مسار المحاضرة



| الوقت    | العنوان الفرعي                                                                                                                                                                                                                                                             |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10 دقيقة | تمهيد المحاضرة                                                                                                                                                                                                                                                             |
| 30 دقيقة | Part 1 : <i>Congenital Heart Disease</i>                                                                                                                                                                                                                                   |
| 5 دقيقة  | نشاط جماعي :- اسئلة حول امراض القلب الولادية ومدى معلومات الطلبة حول موضوع المحاضرة                                                                                                                                                                                        |
| 30 دقيقة | Part 2 : <i>The Types of Congenital Heart Disease</i>                                                                                                                                                                                                                      |
| 15 دقيقة | شرح انواع امراض القلب الولادية ، مثل رباعية فالو وفتحات القلب بمختلف انواعها وضعف الصمامات وامراض الشرايين الكبيرة مثل تضيق الابهر واختلاف مواقع الشرايين الرئيسية في القلب ولكل مرض :- اسبابها ، علاماتها ، طرق تشخيصها ، اهم العلاجات الطبية والجراحية وطرق الوقاية منها |
| 5 دقيقة  | Rest                                                                                                                                                                                                                                                                       |
| 15 دقيقة | مراجعة المحاضرة مع توضيح واجب المحاضرة 2                                                                                                                                                                                                                                   |
| 10 دقيقة | حضور الطلبة وخاتمة المحاضرة                                                                                                                                                                                                                                                |

## اهداف المحاضرة الثانية الجزء الثاني

اكمال شرح امراض القلب الولادية بكل اشكالها مثل رباعية فالو وفتحات القلب بمختلف انواعها وضعف الصمامات وامراض الشرايين الكبيرة مثل تضيق الابهر واختلاف مواقع الشرايين الرئيسية في القلب ولكل مرض :- اسبابها ، علاماتها ، طرق تشخيصها ، اهم العلاجات الطبية والجراحية وطرق الوقاية منه.

# امتحان يومي بالمحاضرتين السابقتين

الامتحان اليومي يكون بثلاث نماذج مختلفة  
وللدراستين الصباحية والمسائية ،  
حيث تكون الاسئلة شاملة لكل المادة تقريباً  
والاختيار يكون بشكل عشوائي.



# نماذج الامتحان اليومي

## Quiz

Quiz 1

A

12\10\2025

Name :-

- The circulatory system, also known as \_\_\_\_\_.
- The Most Common Heart Diseases \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- The primary function of the circulatory system is \_\_\_\_\_

Quiz 1

C

12\10\2025

Name :-

Types of Blood Vessels are \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Cardiovascular disease (CVS) is a general term  
for \_\_\_\_\_

The Most Common Heart Diseases \_\_\_\_\_

Quiz 1

B

12\10\2025

Name :-

- Heart is \_\_\_\_\_
- The Most Common Heart Diseases \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
- The circulatory system works in conjunction with the  
\_\_\_\_\_,  
which plays a role in fluid balance and \_\_\_\_\_ function.

# استعراض المحاضرة الثانية الجزء الثاني





وزارة التعليم العالي والبحث العلمي

الجامعة التقنية الجنوبية

المعهد التقني الطبي – البصرة

قسم تقنيات التخدير

[Anesthes.bti@stu.edu.iq](mailto:Anesthes.bti@stu.edu.iq)



E.Mail : [Presidency@stu.edu.iq](mailto:Presidency@stu.edu.iq)

العراق – البصرة – طريق الزبير العام – مقابل المدينة الرياضية

# Principles of Internal Medical Surgery

**Lecturer**

**Dr . Amaal Fadhil Ghanim**

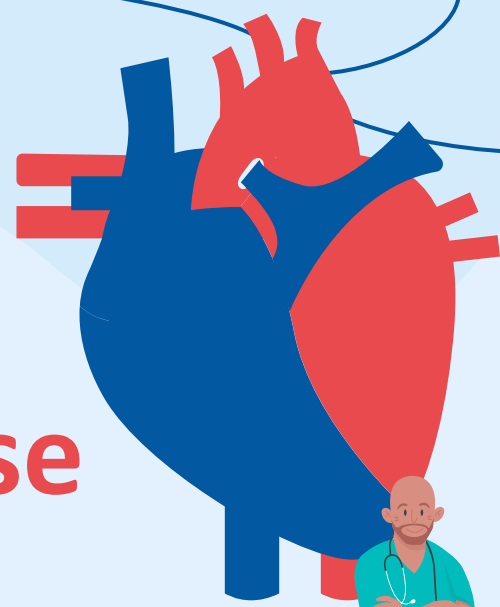
**Email :** [Dr.amaal.f.g@stu.edu.iq](mailto:Dr.amaal.f.g@stu.edu.iq)

**The Second Stage**

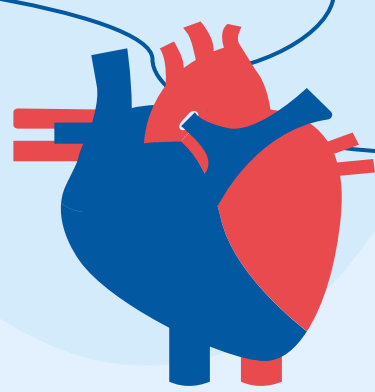
2026 - 2025

## Lec. 2 Part 2

# Congenital Heart Disease



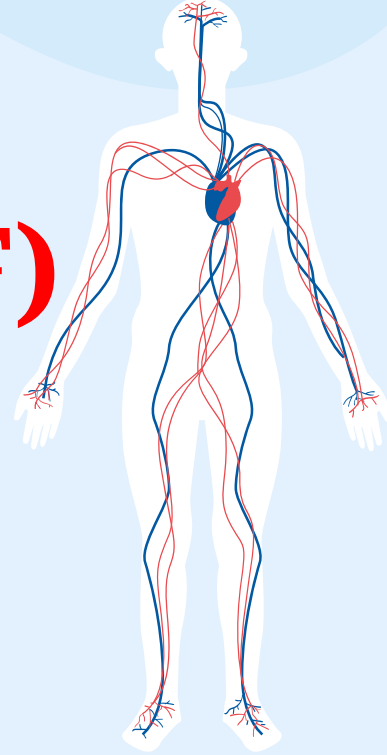
Type 1



# Cyanotic Congenital Heart Disease



# Tetralogy of Fallot (TOF)

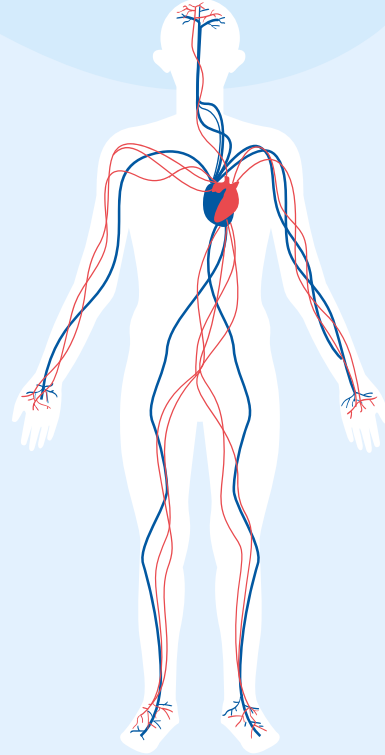


# Tetralogy Of Fallot (TOF)

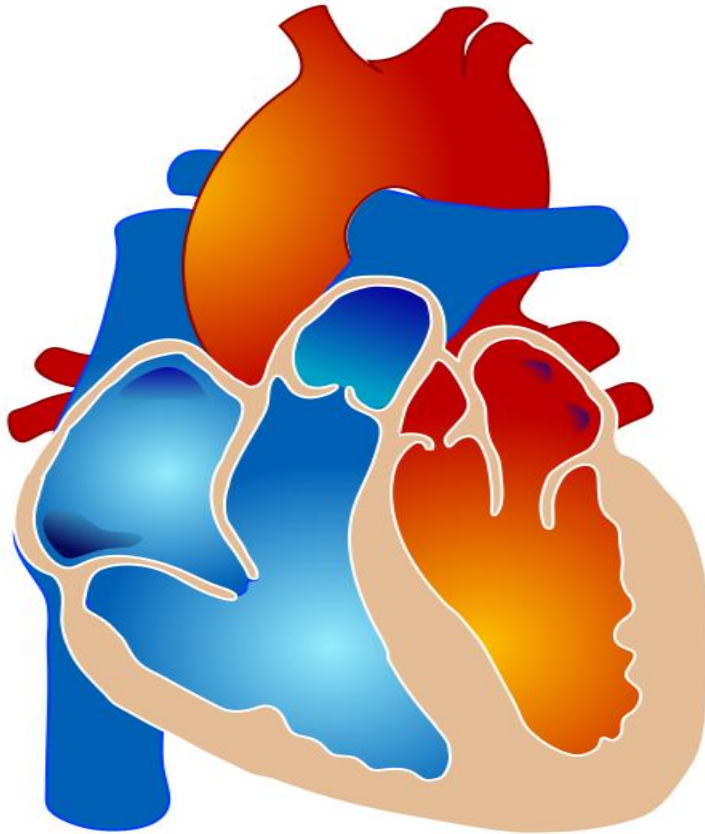
Tetralogy of Fallot is a rare heart condition that is present at birth. That means it's a congenital heart defect. A baby born with the condition has four different heart problems.

These heart problems affect the structure of the heart. The condition causes altered blood flow through the heart and to the rest of the body. Babies with Tetralogy of Fallot often have blue or gray skin color due to low oxygen levels.

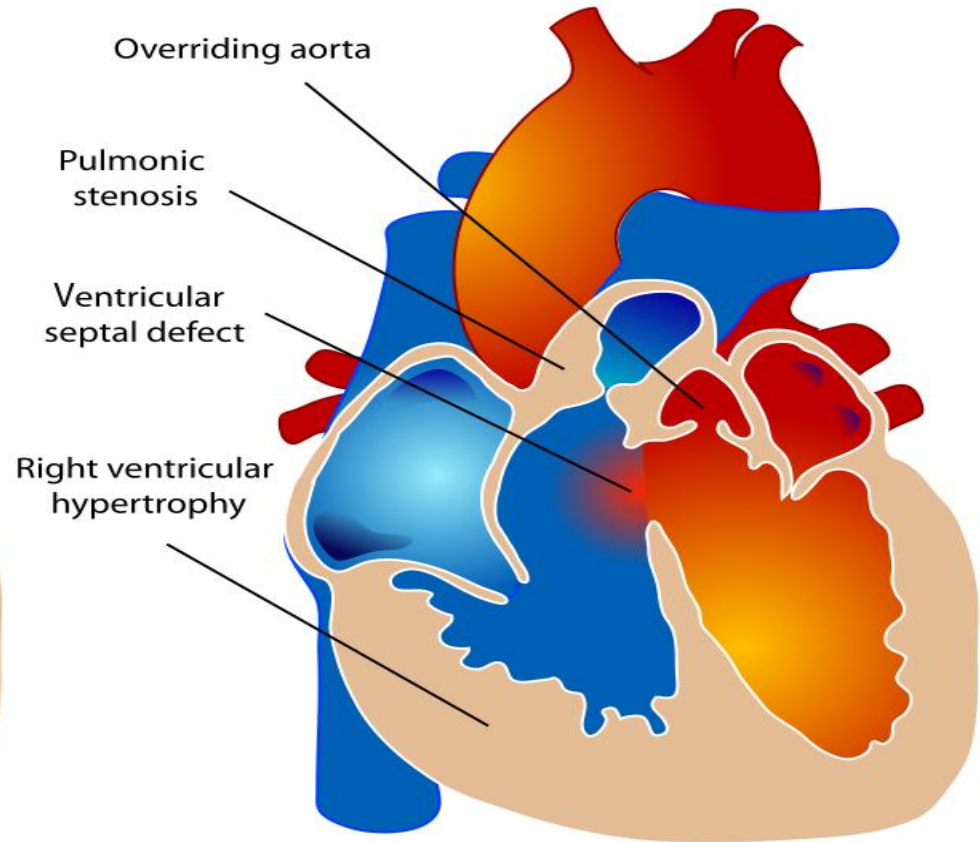
Tetralogy of Fallot is usually diagnosed during pregnancy or soon after a baby is born. If the heart changes and symptoms are mild, Tetralogy of Fallot may not be noticed or diagnosed until adulthood.



Normal heart



**Tetralogy of Fallot**

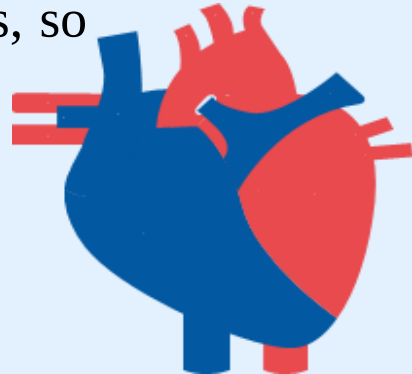


# What is Tetralogy Of Fallot (TOF)?

In a healthy heart, blood travels through the heart to the lungs, where it picks up oxygen.

Then oxygen-rich blood leaves the lungs, travels back to the heart, and then courses throughout the body.

Infants with TOF have trouble getting enough blood to their lungs, so the body gets too much oxygen-poor blood.



# The four heart defects of Tetralogy Of Fallot include:

**1.Pulmonary Stenosis :** A narrowed or stiffened pulmonary valve means the pulmonary artery has trouble sending enough blood from the heart to the lungs.

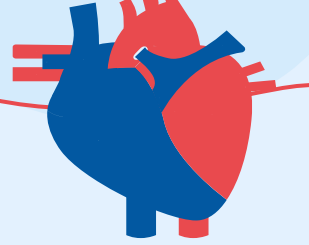
**2.Ventricular Septal Defect (VSD) :** VSD is a hole between the two lower chambers (ventricles) of the heart. The hole allows oxygen-rich blood and oxygen-poor blood to mix, so the body does not receive enough oxygen-rich blood.

**3.Overriding Aorta :** The aorta, which is the artery that carries oxygen-rich blood to the body, is out of place and rises above both ventricles. As a result, the body gets too much oxygen-poor blood.

**4.Hypertrophy (enlargement) of the Right Ventricle :** The right lower chamber of the heart is bigger or thicker than normal, making it harder for blood to go through the pulmonary valve.



# The risk of TOF may also increase due to:



- ❖ Environmental factors, such as smoking or taking certain medications during pregnancy.
- ❖ Family history.
- ❖ Having certain medical conditions during pregnancy, such as diabetes or rubella.

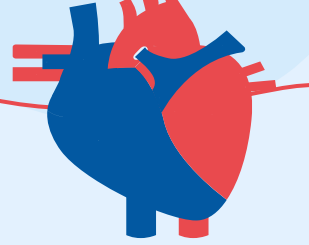


# Tetralogy Of Fallot Symptoms

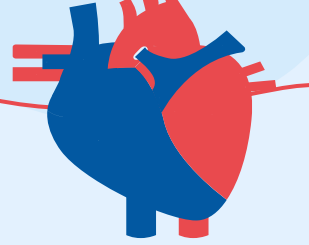
The most common symptom of TOF is cyanosis, which is when the skin, lips and nail beds are blueish in color. Cyanosis is the result of too much oxygen-poor blood being pumped through the body.

Cyanosis may come in sudden spells, called tet spells, when a baby is crying or feeding. It happens when a baby's blood oxygen level drops quickly.

During the spell, babies may have a hard time breathing. In the most extreme circumstances, they may go limp or lose consciousness.



# Tetralogy of Fallot Symptoms

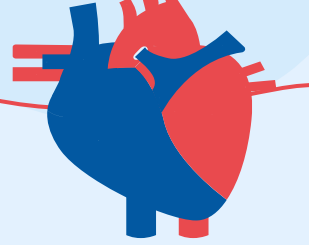


Other symptoms of Tetralogy Of Fallot at birth may include:

- Difficult or rapid breathing.
- Fatigue.
- Fussiness.
- Heart murmur.
- Trouble feeding or gaining weight.



# Tetralogy of Fallot Diagnosis



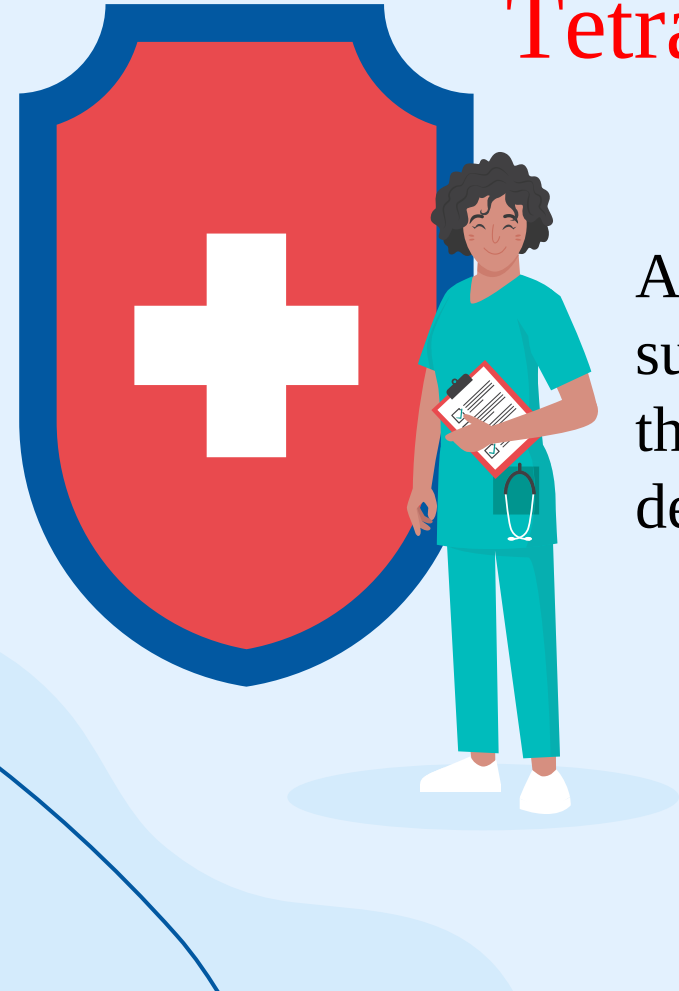
Some babies are diagnosed with Tetralogy Of Fallot before birth. The heart conditions may be seen and heard on prenatal ultrasounds, while the baby is still in the uterus.

After birth, tests for TOF may include:

- Cardiac catheterization.
- Chest X-ray.
- Echocardiogram (echo).
- Electrocardiogram (ECG).
- Cardiac Computer Tomography (CT).
- MRI



# Tetralogy Of Fallot Treatment



All children with Tetralogy Of Fallot need surgery. Most children have surgery when they're about six months old. Doctor will determine which surgery is most appropriate.

# Tetralogy Of Fallot Treatment

## Temporary Shunt Operation

Babies who are not strong enough for a full repair surgery or who have other health problems may have a shunt operation.

A shunt is a tube that is sewn into place between the aorta and the pulmonary artery. It helps blood flow to the lungs. A shunt operation is not permanent; babies with a shunt still need a full repair surgery later.



# Tetralogy of Fallot Treatment

## Full Repair Surgery

A full Tetralogy Of Fallot repair surgery involves:

- Placing a patch over the ventricular septal defect.
- Removing thickened tissue from the right ventricle.
- Widening the pulmonary valve.



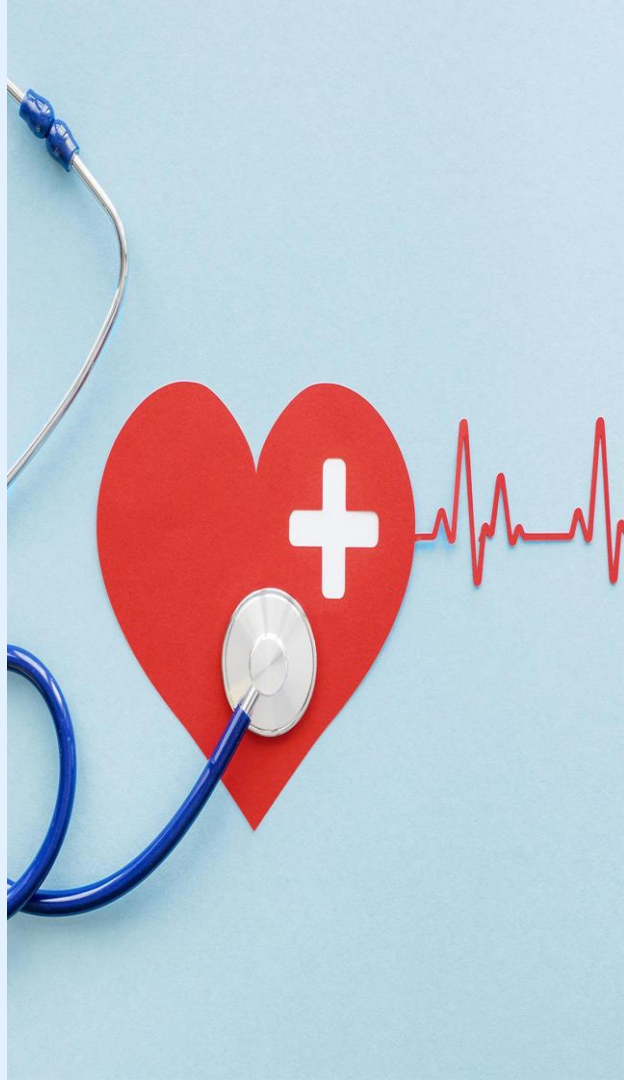
# فيديو توضيحي لعلاج رباعية فالو



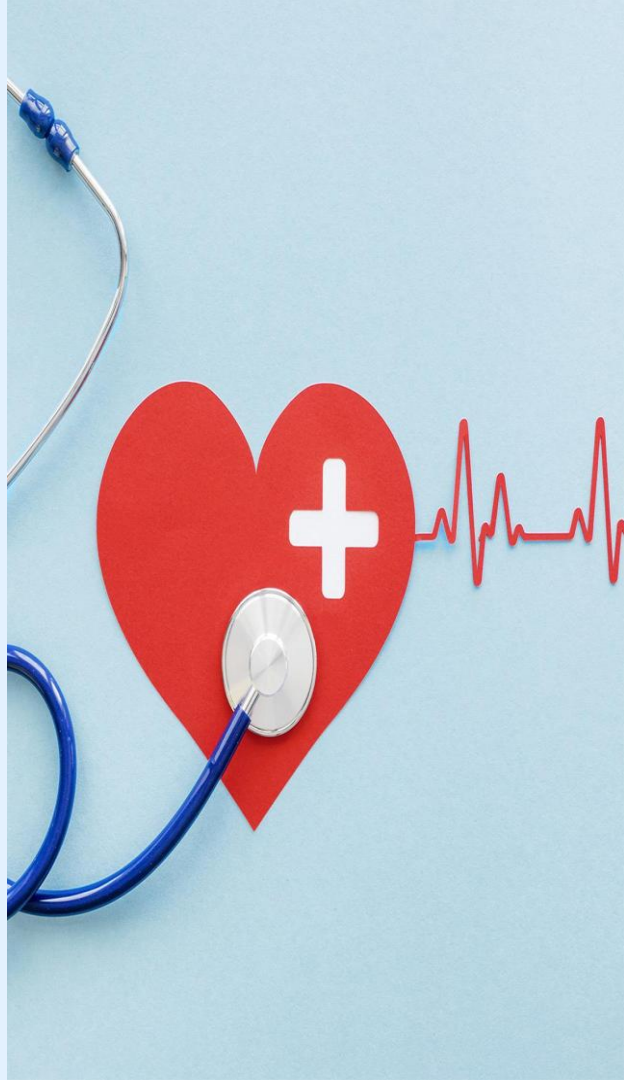
**NATIONWIDE  
CHILDREN'S**

*When your child needs a hospital, everything matters.<sup>SM</sup>*





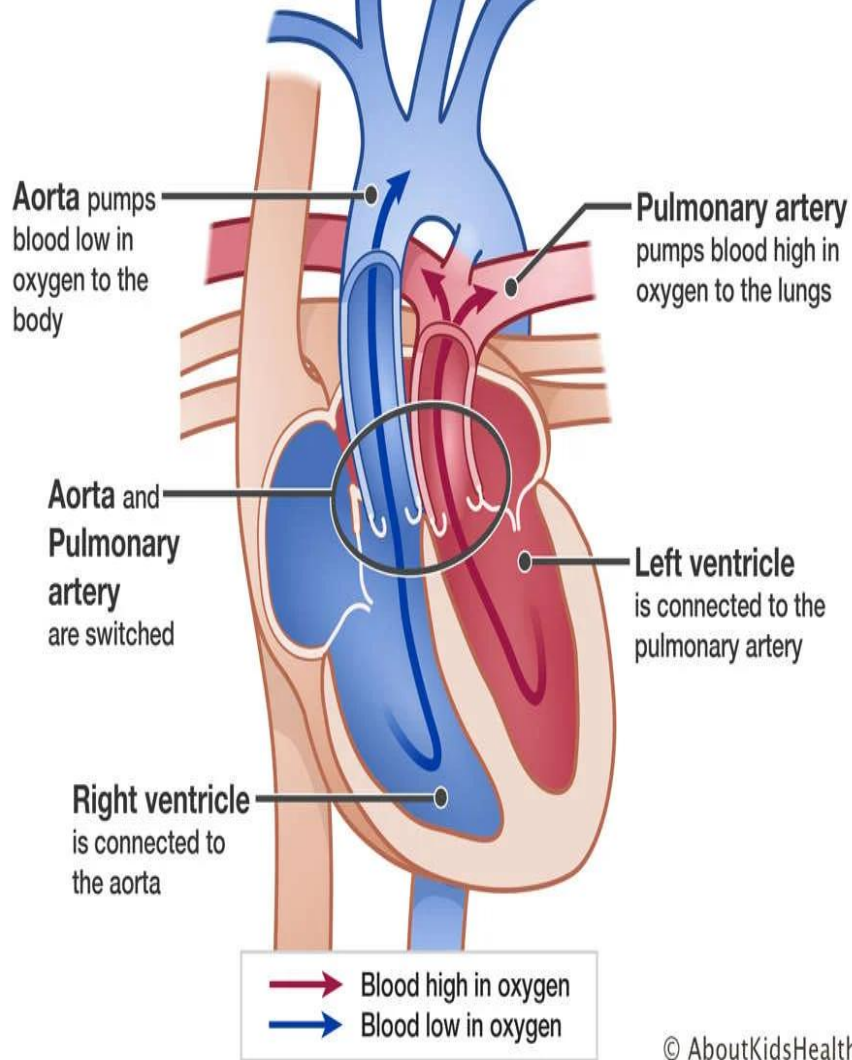
# **Transposition of Great Vessels (TGV)**



# Transposition of Great Vessels TGV

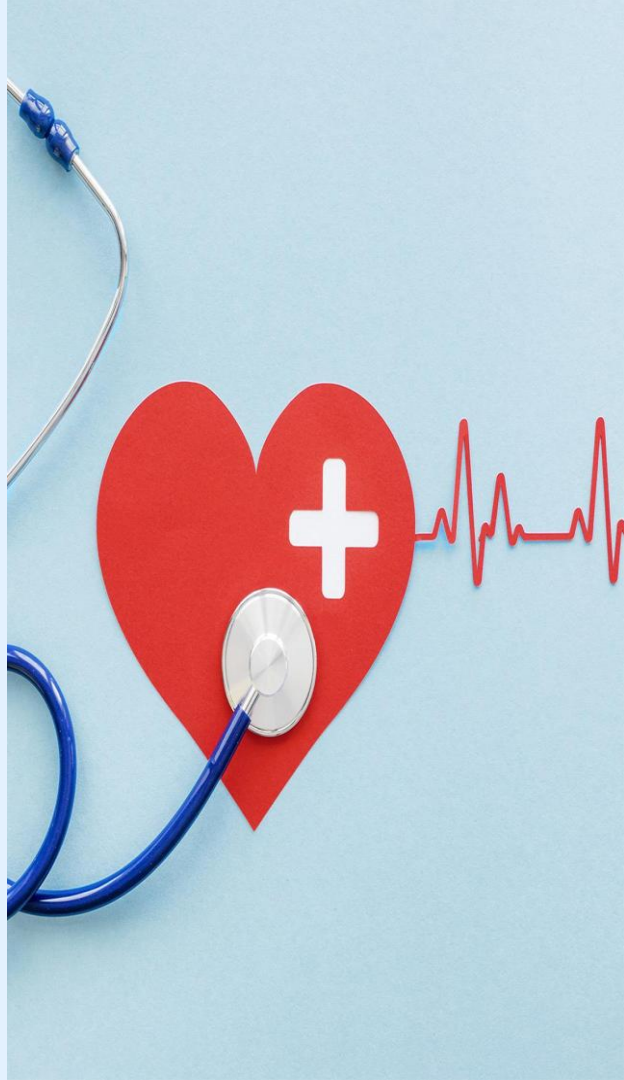
Transposition of the Great Vessels (TGV), also known as

Transposition of the Great Arteries (TGA), is a serious congenital heart defect where the aorta and pulmonary artery are connected to the wrong heart ventricles, causing oxygen-poor blood to be sent to the body and oxygen-rich blood to the lungs, leading to a bluish skin color (cyanosis).



## Transposition of Great Vessels TGV

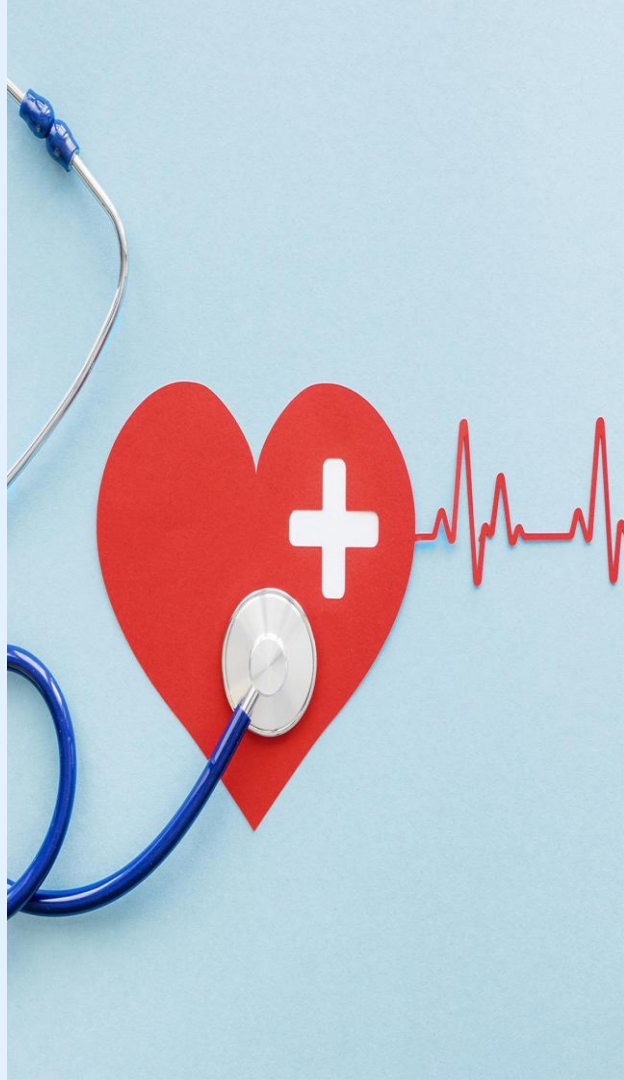
The aorta is connected to the right ventricle, and the pulmonary artery is connected to the left ventricle.



## Symptoms

Symptoms of Transposition of the Great Arteries include:

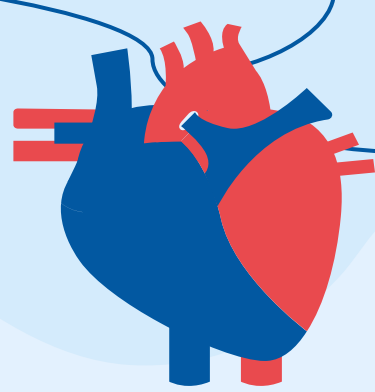
- Blue or gray skin due to low oxygen levels.
- Pounding heartbeat.
- Weak pulse.
- Lack of appetite.
- Poor weight gain.



## Treatment

**Surgery:** An arterial switch operation is performed within the first few days or weeks of life, repositioning the aorta and pulmonary artery to their correct places.

Type 2



# A Cyanotic Congenital Heart Disease





# Atrial Septal Defect (ASD)

# Atrial Septal Defect ASD



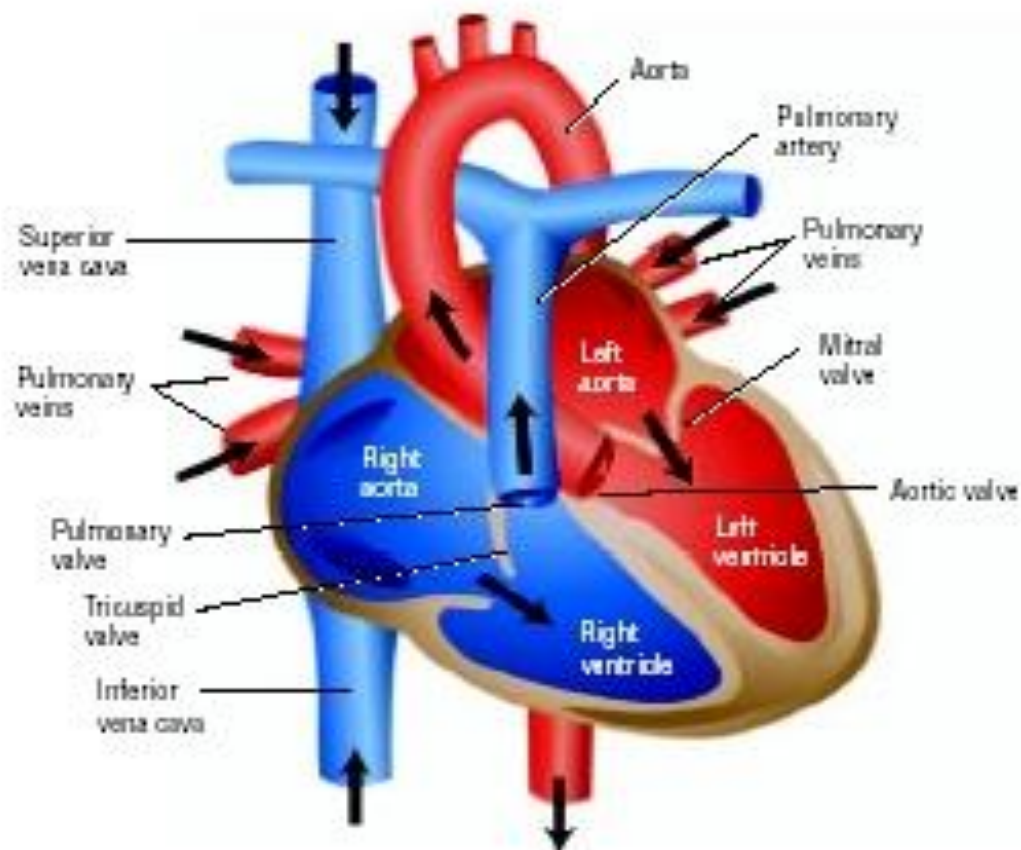
(ASD) is a hole in the atrial septum, which is the wall that separates the heart's two upper chambers (atria). It happens when the septum doesn't form properly. It's also called a "hole in the heart."

Some blood from the left atrium flows in the wrong direction, into the right atrium.

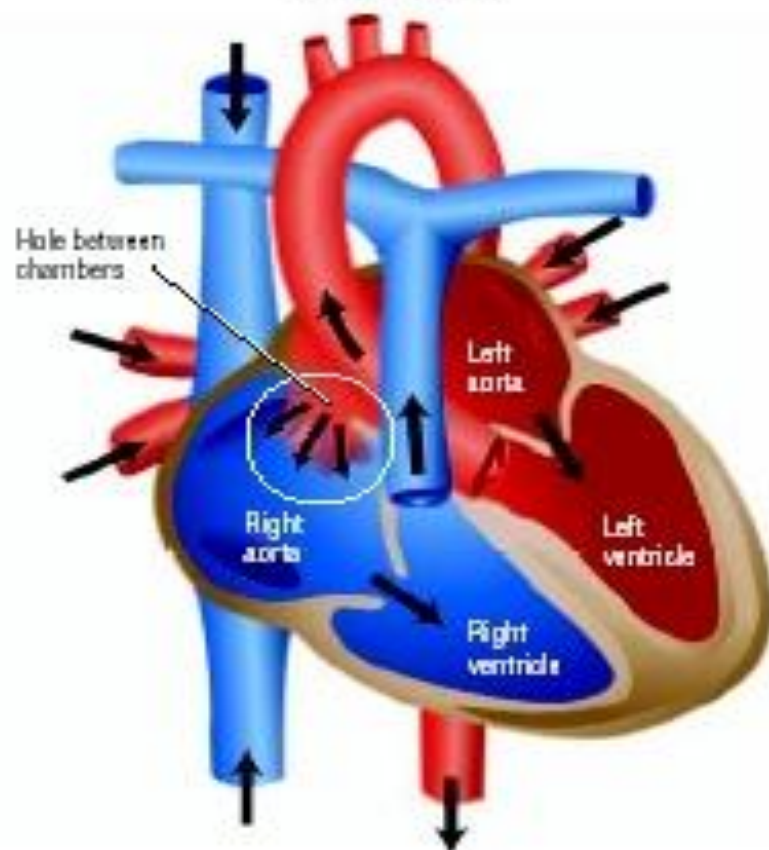
The right atrium contains oxygen-poor blood that needs to cycle through the lungs. So, the right atrium gets extra blood (with oxygen) that ultimately goes back to the lungs again.

## Atrial septal defect

Normal Heart



Atrial septal defect  
Ostium Secundum



# ASD Symptoms

Most infants and children are asymptomatic but over years may experience the symptoms

- Infant gets tired during feeding .
- Child gets tired with playing/eating.
- Shortness of breath.
- Fatigue.
- Sweating.
- Palpitations.
- Stunted growth.



# ASD Diagnosis



Healthcare providers diagnose atrial septal defects through a physical exam and tests that check heart's structure and function.

# ASD Diagnosis



Possible tests include:

- **Electrocardiogram (ECG)**. An ECG shows the heart's electrical activity. It can reveal if there is an abnormal heart rhythm .
- **Chest X-ray**. This test can show enlargement in the chambers of the heart. It's also show if an atrial septal defect affected the blood vessels in the lungs.
- **Transthoracic echocardiogram (TTE)**. This test shows how the left-to-right shunting of blood affects the heart. It can also show details related to pulmonary hypertension.
- **Transesophageal echocardiogram (TEE)**. This test shows the size, shape and location of an atrial septal defect. It can also check the heart valves.
- **Intracardiac echocardiogram (ICE)**. For this test, a provider sends a tiny camera to the heart through a vein to see the size and shape of the ASD and the direction of blood flow across it.

# ASD Diagnosis

## فيديو توضيحي

السحب للأعلى للتقديم أو التراجع بدقة أكبر

0:00



المزيد من الفيديوهات

يمكنك النقر هنا أو التمرير بسرعة للأعلى لعرض جميع الفيديوهات.



# ASD Treatment



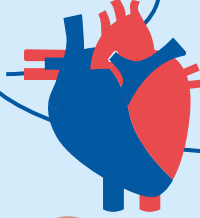
It's possible to live with an ASD in the heart if the hole is small, and usually don't need a repair for a small atrial septal defect that doesn't close by itself.

Providers may recommend an ASD closure if an atrial septal defect is causing issues and hasn't closed by age 2 or 3.

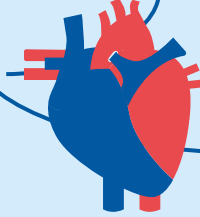
But there should get a repair for a larger ASD even if it isn't causing symptoms.

Treating it prevents serious complications in the future, even for adults.

# Ventricular Septal Defect (VSD)



# Ventricular Septal Defect VSD

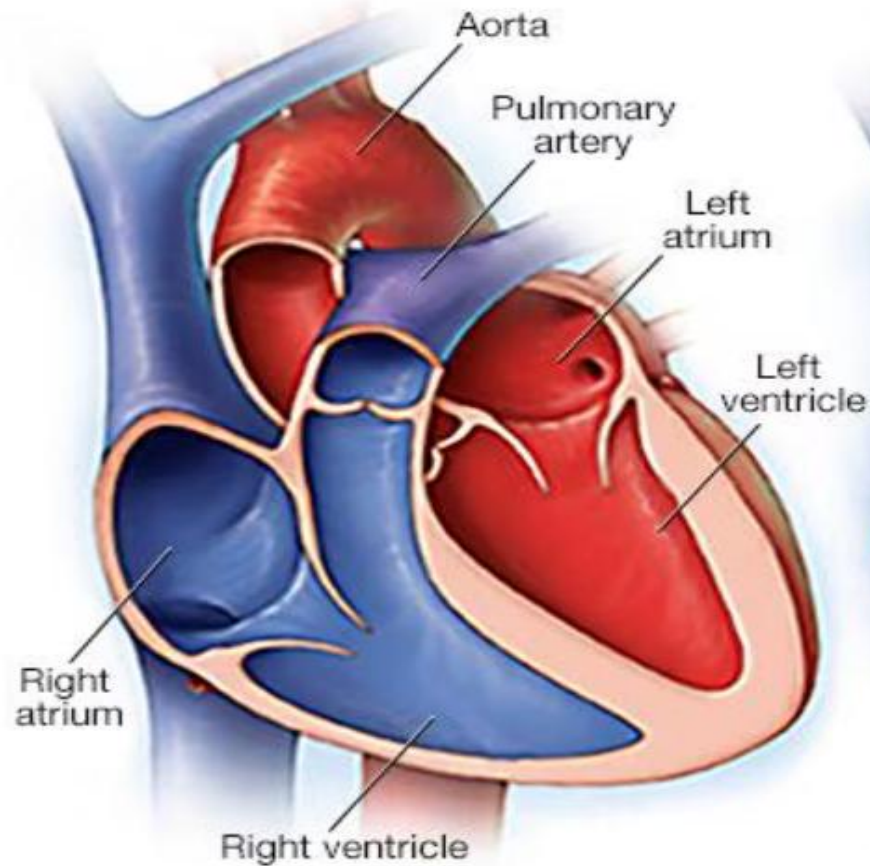


A Ventricular Septal Defect (VSD) is a hole in the heart that's present at birth (congenital heart defect). The hole is between the lower heart chambers (right and left ventricles). It allows oxygen-rich blood to move back into the lungs instead of being pumped to the rest of the body.

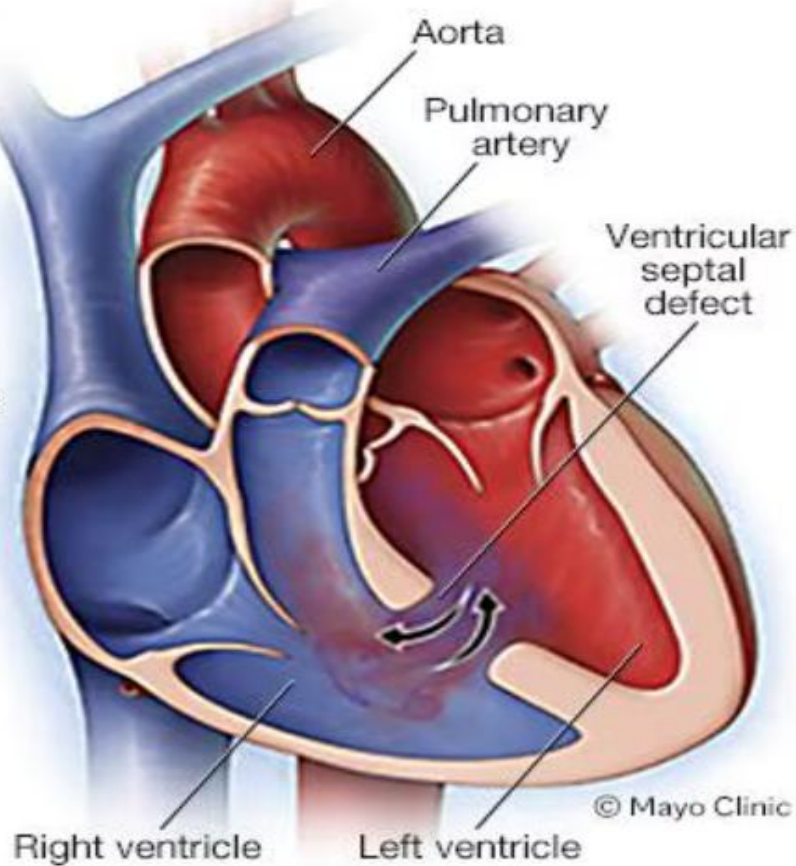
A VSD changes how blood flows through the heart and lungs. Oxygen-rich blood gets pumped back to the lungs instead of out to the body. The oxygen-rich blood mixes with oxygen-poor blood. These changes may increase blood pressure in the lungs and require the heart to work harder to pump blood.



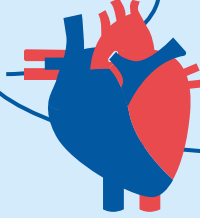
The heart



Ventricular septal defect



# VSD Symptoms



Symptoms of a Ventricular Septal Defect (VSD) depend on the size of the hole and if there are any other heart problems. A small VSD may never cause symptoms.

**In general, VSD symptoms in a baby may include:**

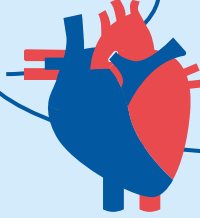
- Poor eating.
- Slow or no physical growth .
- Fast breathing or breathlessness.
- Easy tiring.
- Whooshing sound when listening to the heart with a stethoscope (heart murmur).

**Symptoms of a ventricular septal defect in adults may include:**

- Shortness of breath, especially when exercising.
- Whooshing sound when listening to the heart with a stethoscope (heart murmur).



# VSD Causes



Ventricular septal defect (VSD) occurs as the baby's heart is developing during pregnancy.

The muscular wall separating the heart into left and right sides doesn't form fully, leaving one or more holes. The size of the hole or holes can vary.

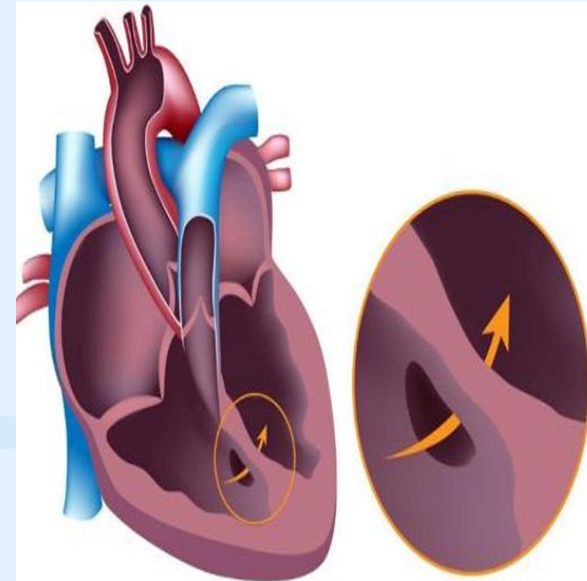
There's often no clear cause. Genetics and environmental factors may play a role.

VSD can occur alone or with other heart problems present at birth. Rarely, a VSD can occur later in life after a heart attack or certain heart procedures.



# VSD Diagnosis

1. Echocardiogram.
2. Electrocardiogram (ECG).
3. Chest X-ray.
4. Pulse oximetry.
5. Cardiac catheterization.
6. Cardiac magnetic resonance imaging (MRI) scan.
7. Computerized tomography (CT) scan.



Pulse oximetry

فيديو توضيحي

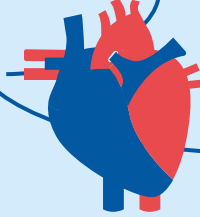
AFP



**LUNG DISEASE:  
THE IMPORTANCE OF PULSE OXIMETERS**

AFP

# VSD Treatment

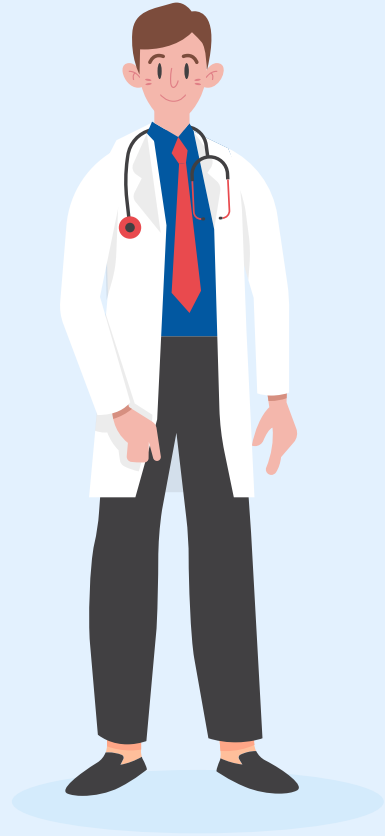


VSD treatment depends on the size, location, and symptoms of the defect.

Small VSDs may close on their own.

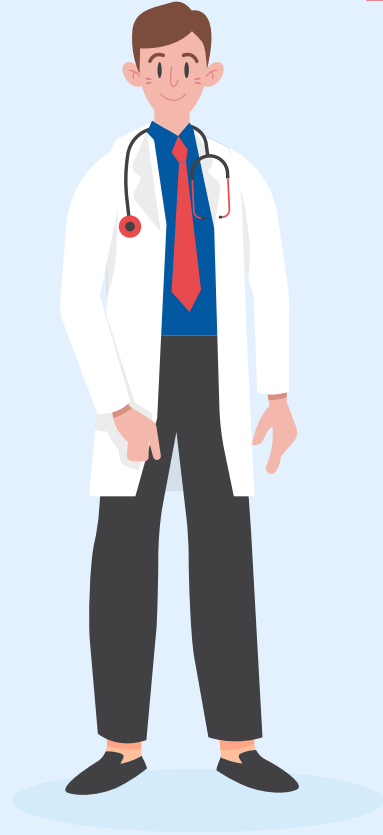
Cardiac Catheterization with a plug device are used to permanently close larger defects.





# Patent ductus arteriosus (PDA)

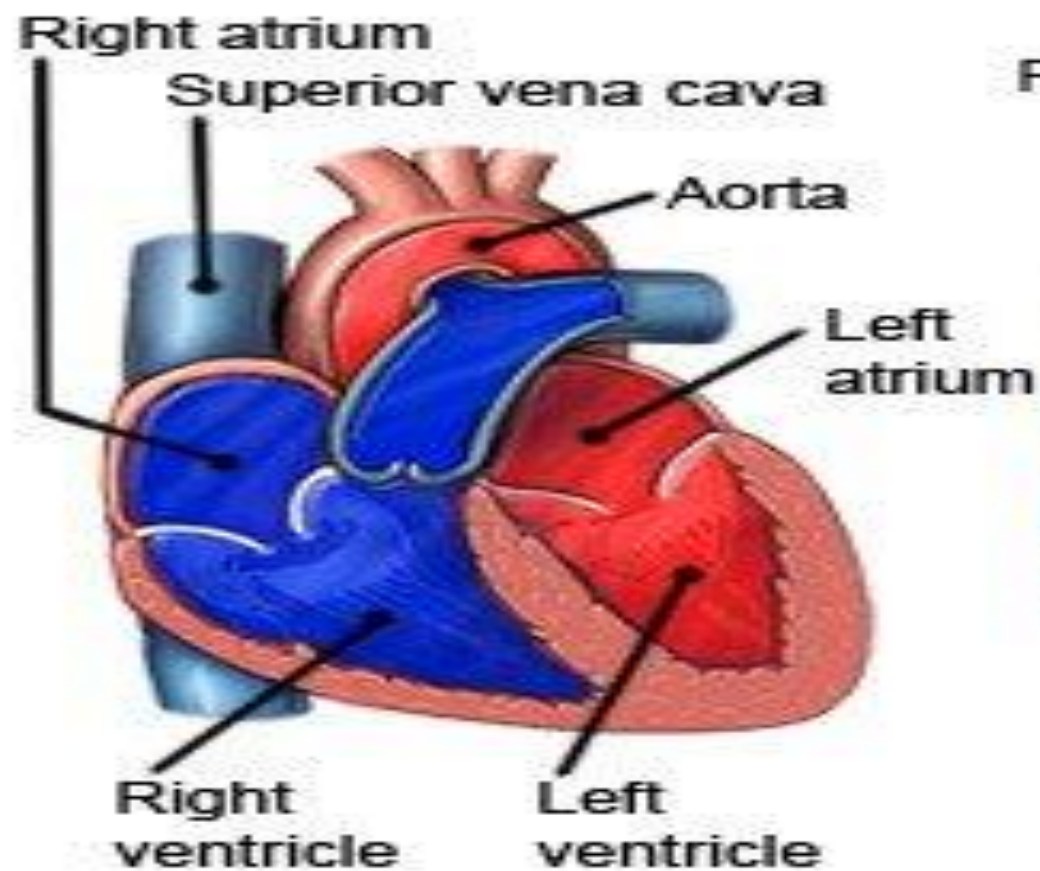
# Patent ductus arteriosus (PDA)



(PDA) is a persistent opening between the two major blood vessels leading from the heart.

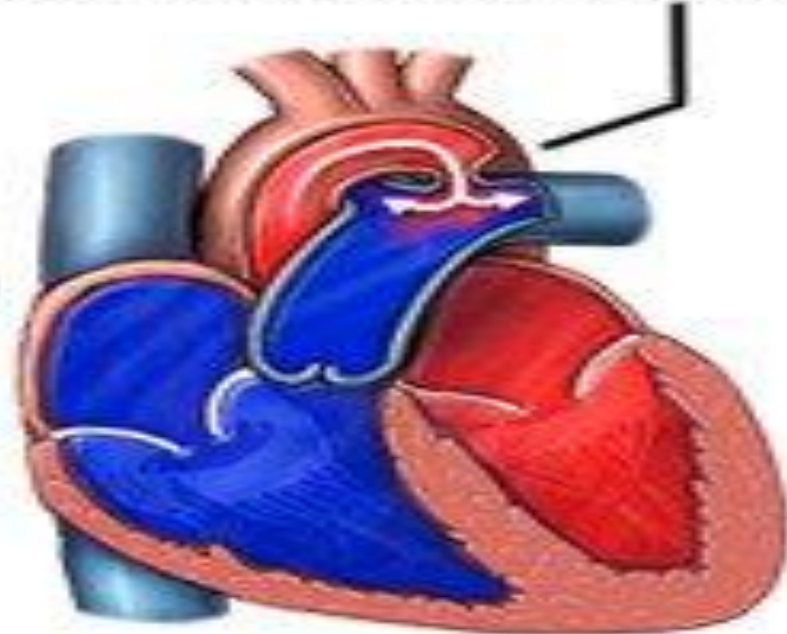
An opening called the ductus arteriosus is part of the blood flow system in the womb for a fetus.

It usually closes shortly after birth. If the opening remains open, it's called a Patent Ductus Arteriosus. A PDA is a type of congenital heart defect.



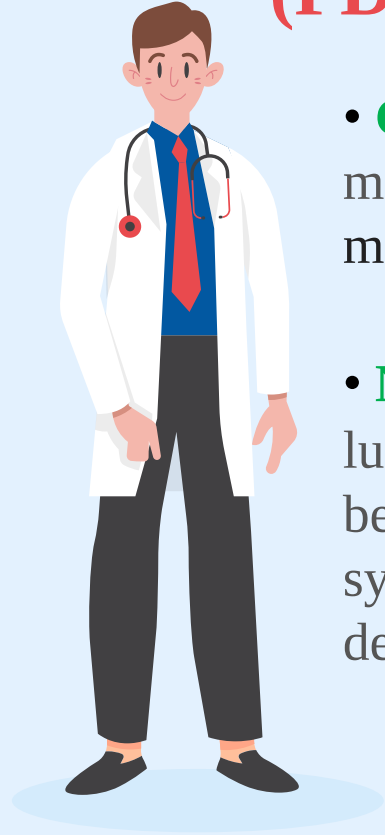
**Normal Heart**

Patent ductus arteriosus



**Patent  
Ductus Arteriosus**

## (PDA) Causes



- **German measles during pregnancy:** Babies born to mothers who had rubella (German measles) during pregnancy may have a higher risk of a PDA.
- **Neonatal respiratory distress syndrome:** Babies whose lungs didn't get enough lubricating substance (surfactant) before birth may develop neonatal respiratory distress syndrome, a breathing problem. These babies may also develop a PDA.

# (PDA) Symptoms



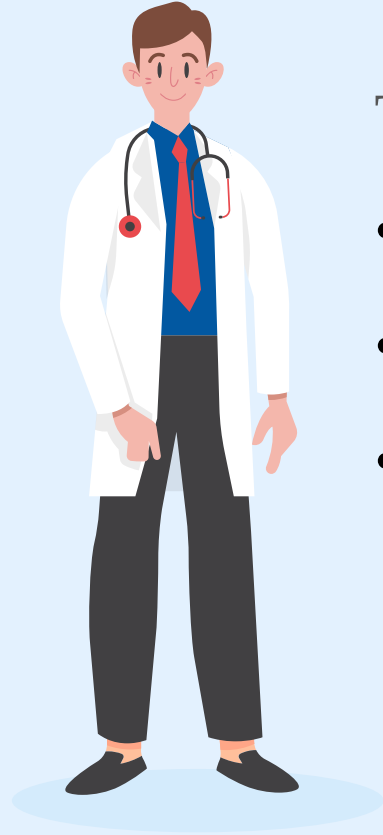
PDA symptoms vary according to patent ductus arteriosus types.

Small PDA may not cause any symptoms other than a heart murmur.

Larger PDA may symptoms :

- Rapid breathing.
- Shortness of breath (dyspnea).
- Sweating during feedings.
- Fatigue or tiredness.
- Feeding and eating problems.
- Poor weight gain or growth.
- Fast pulse or heart rate.

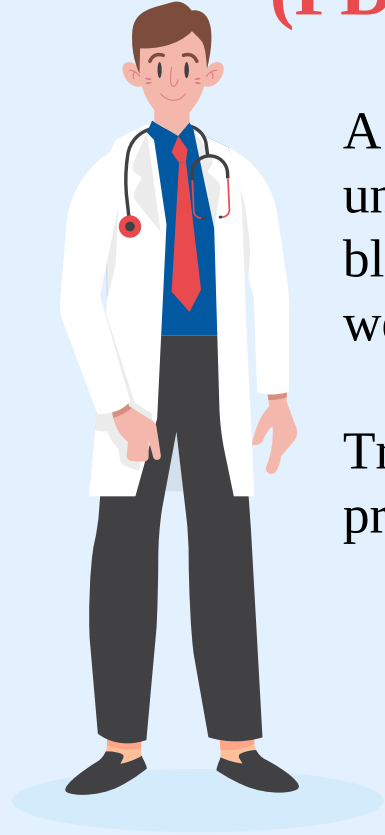
# (PDA) Diagnosis



Tests including:

- Chest X-ray.
- Echocardiogram (heart ultrasound).
- Electrocardiogram (ECG).

## (PDA) Treatment



A small PDA might never need treatment. But a large, untreated Patent Ductus Arteriosus can let oxygen-poor blood move the wrong way. This can make the heart muscle weak, causing heart failure and other complications.

Treatments may include regular health checkups, and a procedure or surgery to close the opening.

# Aortic coarctation

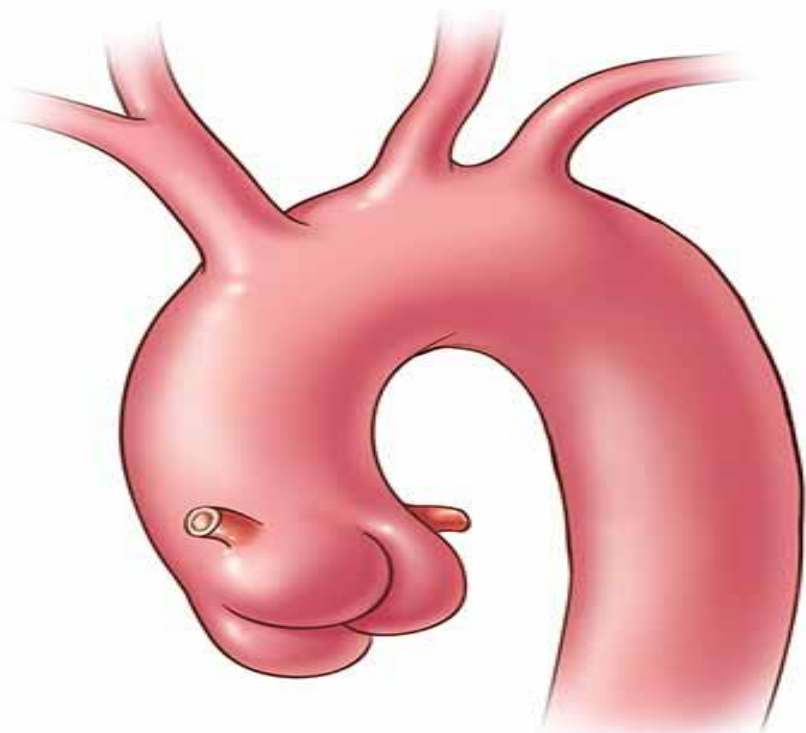


# Aortic Coarctation

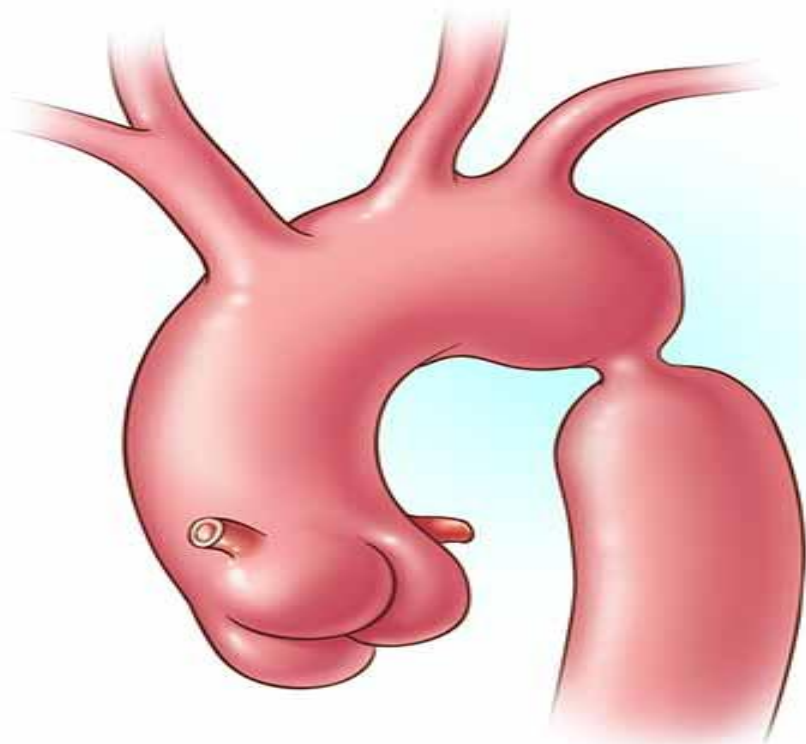
Aortic coarctation is a narrowing of a part of the body's main artery (the aorta). The condition forces the heart to work harder to pump blood.



# Coarctation of the aorta



**Normal aorta**



**Aortic coarctation**

# Aortic Coarctation

Coarctation of the aorta is usually present at birth. That means it is a congenital heart defect.

But sometimes the condition can occur later in life.

Coarctation of the aorta often occurs along with other congenital heart defects.



# Aortic Coarctation Symptoms

Symptoms depend on how much of the aorta is narrowed. Most people don't have symptoms.

If a baby is born with an extreme narrowing of the aorta, symptoms may be noticed shortly after birth.



# Aortic Coarctation Symptoms

Symptoms of coarctation of the aorta in infants include:

- Difficulty breathing.
- Difficulty feeding.
- Heavy sweating.

Symptoms of coarctation of the aorta later in life may include:

- Chest pain.
- High blood pressure.
- Headaches.
- Muscle weakness.
- Leg cramps.
- Cold feet.
- Nosebleeds.



## Aortic Coarctation Cause

The cause of coarctation of the aorta is unclear. It's usually a heart problem present at birth, as CHD.



# Aortic Coarctation Cause

Rarely, coarctation of the aorta can happen later in life. Conditions or events that can narrow the aorta and cause this condition include:

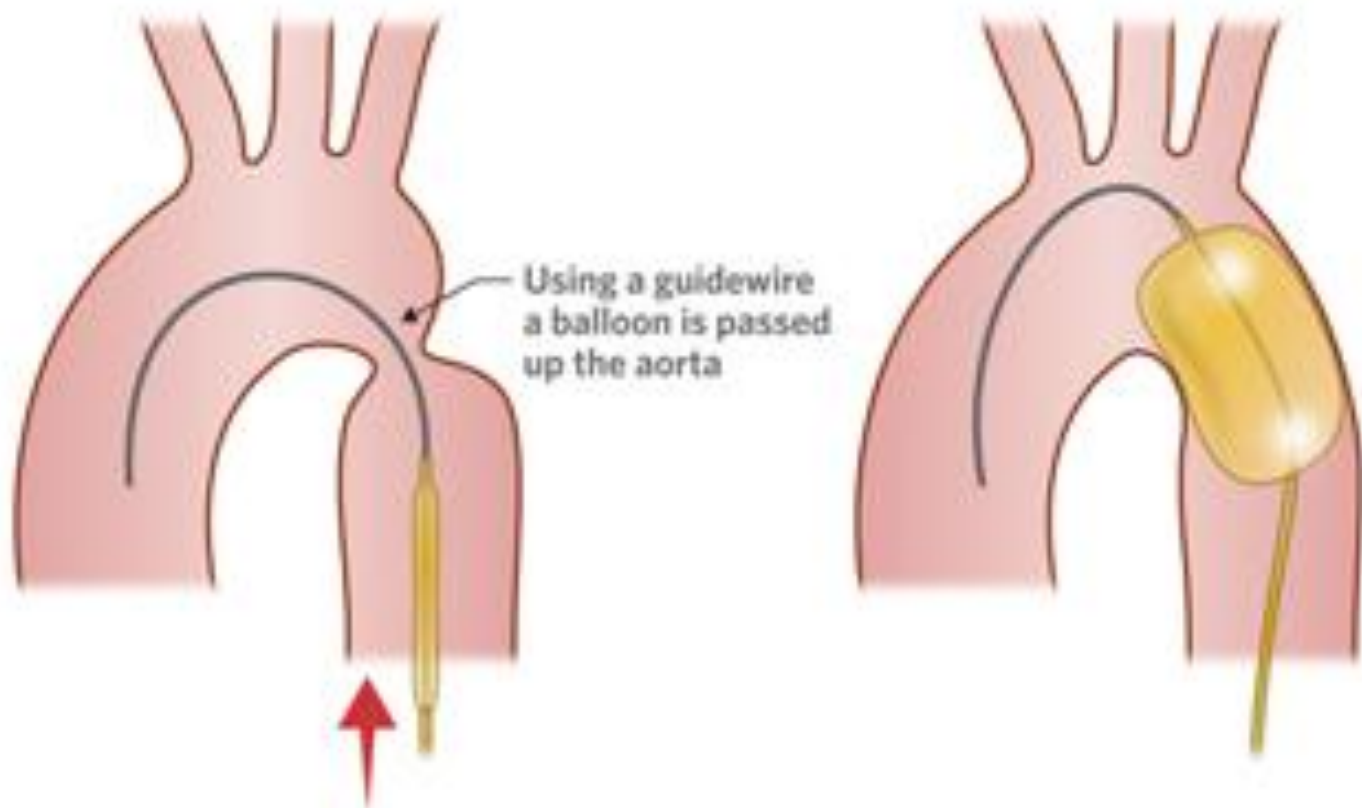
- Traumatic injury.
- An extreme buildup of cholesterols and fats in the arteries, called atherosclerosis.
- A rare type of swelling and irritation of blood vessels in the heart, called Takayasu arteritis.



# Aortic Coarctation Treatment

Treatment for aortic coarctation can include surgical removal of the narrowed section and reconnection of the aorta, or less invasive procedures like balloon angioplasty to widen the area, sometimes with a stent to keep it open.





Balloon angioplasty

# Any Question ?



A top-down view of several white roses and sprigs of baby's breath flowers arranged on a plain white surface. The roses are in various stages of bloom, and the baby's breath consists of small, delicate white flowers on thin green stems. The text "Thanks For Lisening" is centered in the middle of the image in a green, sans-serif font.

**Thanks For Lisening**

**نهاية المحاضرة الثانية الجزء الثاني**

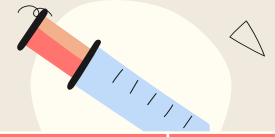
المحاضرة الثالثة

# Heart Failure

م.د. آمال فاضل غانم



# مسار المحاضرة



| الوقت    | العنوان الفرعي                                                                                                                     |
|----------|------------------------------------------------------------------------------------------------------------------------------------|
| 10 دقيقة | تمهيد المحاضرة                                                                                                                     |
| 30 دقيقة | <b>Part 1 : Heart Failure</b>                                                                                                      |
| 5 دقيقة  | نشاط جماعي :- اسئلة عامة حول المرض ومعلومات الطلبة قبل استماعهم للجزء الاول من المحاضرة وكمية استيعابهم                            |
| 30 دقيقة | <b>Part 2 : Classification of HF according to symptoms</b>                                                                         |
| 15 دقيقة | استعراض عملية فشل القلب بشكل مفصل :- اسبابها ، علاماتها ، طرق تشخيصها ، اهم العلاجات الطبية واسلوب الحياة الصحية لتجنب هذه الامراض |
| 5 دقيقة  | Rest                                                                                                                               |
| 15 دقيقة | Quiz                                                                                                                               |
| 10 دقيقة | حضور الطلبة وخاتمة المحاضرة                                                                                                        |



# الهدف من المحاضرة

شرح وتوضيح مرض فشل القلب وكيفية تشخيصه  
لما للامر من اهمية وذلك من خلال ملاحظة  
الاسباب واسلوب الحياة الخاطأ وتجنبه لحياة اكثر  
صحة وسلامة

وكذلك لمعرفة كيفية التعامل مع الحالة في صالات

نعمليات كون خريبي القسم هم تقنيوا تخدير



# امتحان يومي بالمحاضرة السابقة

الامتحان اليومي يكون بثلاث نماذج مختلفة  
وللدراستين الصباحية والمسائية ،  
حيث تكون الاسئلة شاملة لكل المادة تقريباً  
والاختيار يكون بشكل عشوائي.





# نماذج الامتحان اليومي



Quiz 2 \_\_\_\_\_ A \_\_\_\_\_ 19 \10 \2025

Name :-

Q1 : CHD is

Q2 : What is ( HLHS )

Q3: Give five Complications of CHD treatment?

Name :-

Quiz 2 \_\_\_\_\_ B \_\_\_\_\_ 19 \10 \2025

Q1 : Numerate five causes of CHD ?

Q2 : There are some steps can take to help reduce child's ( with CHD ) overall risk of heart problems present at birth such as: \_\_\_\_\_

Q3 : Tricuspid Atresia

Name :-

Quiz 2 \_\_\_\_\_ C \_\_\_\_\_ 19 \10 \2025

Q1 : These tests can help diagnose CHD in newborns, children or adults (Give 3 tests)

Q2 : What is ( HLHS ) :

Q3 : What full name of : ASD \_\_\_\_\_

PDA \_\_\_\_\_





## استعراض المحاضرة الثالثة



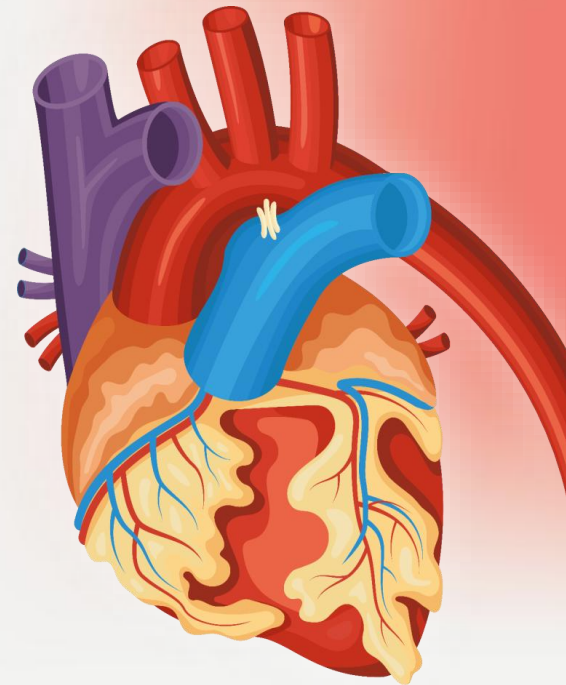
وزارة التعليم العالي والبحث العلمي

الجامعة التقنية الجنوبية

المعهد التقني الطبي – البصرة

قسم تقنيات التخدير

[Anesthes.bti@stu.edu.iq](mailto:Anesthes.bti@stu.edu.iq)



E.Mail : [Presidency@stu.edu.iq](mailto:Presidency@stu.edu.iq)

العراق – البصرة – طريق الزبير العام – مقابل المدينة الرياضية

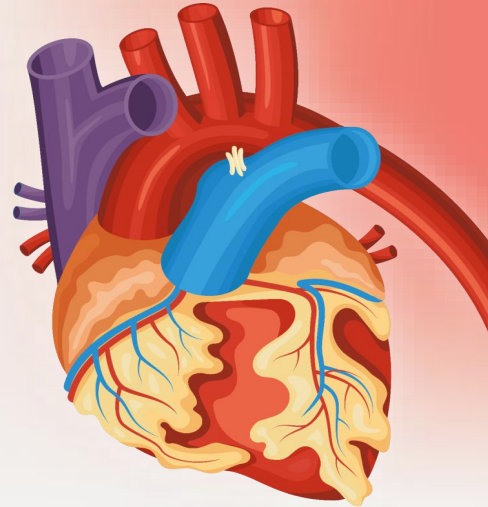


# Principles of Internal Medical Surgery

**Lecturer**

**Dr . Amaal Fadhil Ghanim**

**Email :** [Dr.amaal.f.g@stu.edu.iq](mailto:Dr.amaal.f.g@stu.edu.iq)

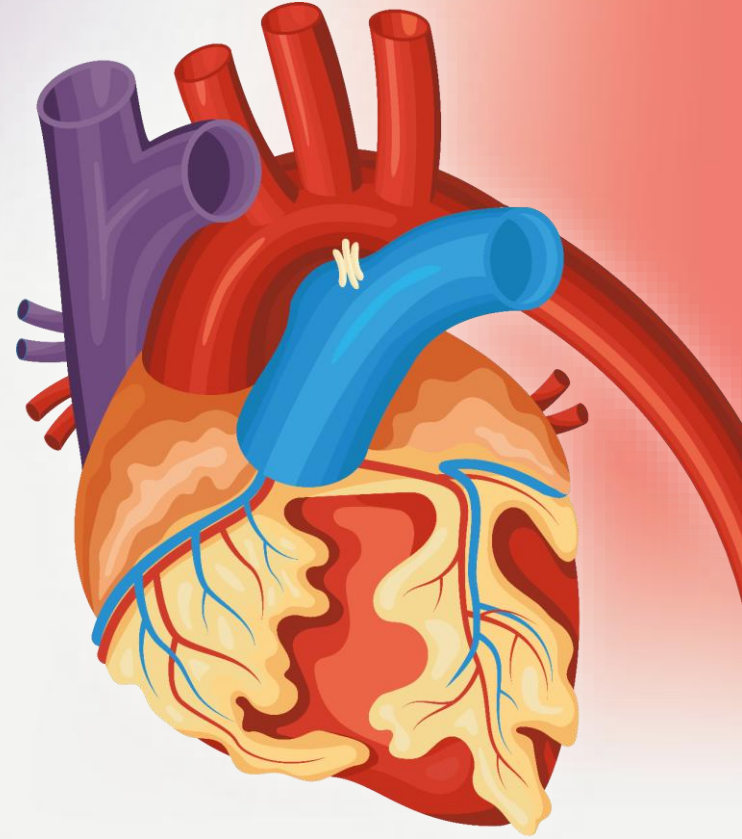


**The Second Stage**

2026 - 2025

## Lec. 3

# Heart Failure



# Heart Failure

- Heart Failure occurs when the heart muscle doesn't pump blood as well as it should. When this happens, blood often backs up and fluid can build up in the lungs, causing shortness of breath.
- Some heart conditions slowly leave the heart too weak or stiff to fill and pump blood properly. These conditions include narrowed arteries in the heart and high blood pressure.



# Is the HF adangrous disease?



Heart failure can be life-threatening!!!

People with heart failure may have severe symptoms.

Some may need a heart transplant or a device to help the heart pump blood.

Heart failure also may be called **congestive heart failure**.





# The position of Heart failure

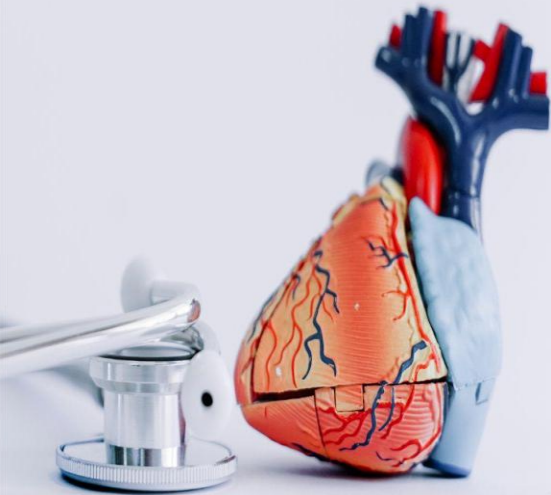
HF usually begins with the lower left heart chamber, ( the left ventricle ).

This is the heart's main pumping chamber.

But heart failure also can affect the right side, especially the lower right heart chamber (the right ventricle ).

Sometimes heart failure affects both sides of the heart.





# Types of Heart Failure



# Types of Heart Failure

| Type of heart failure                                                                       | Description                                                                                                                                                                 |
|---------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Right-sided heart failure                                                                   | <p>This type affects the lower right heart chamber, (the right ventricle).</p> <p>Fluid may back up into the belly, legs and feet, causing swelling.</p>                    |
| Left-sided heart failure                                                                    | <p>This type affects the lower left heart chamber, ( the left ventricle).</p> <p>Fluid may back up in the lungs, causing shortness of breath.</p>                           |
| Heart failure with reduced Ejection Fraction (HFrEF), also called systolic heart failure    | <p>This is a type of left-sided heart failure. The left ventricle can't squeeze as strong as it should. The heart isn't strong enough to pump enough blood to the body.</p> |
| Heart failure with preserved Ejection Fraction (HFpEF), also called diastolic heart failure | <p>This is a type of left-sided heart failure. The left ventricle can't relax or fill fully. The heart has trouble filling with blood.</p>                                  |

# Causes



# Causes

Heart failure can be caused by a weakened, damaged or stiff heart.

If the heart is damaged or weakened, the heart chambers may stretch and get bigger. The heart can't pump out the needed amount of blood.

If the main pumping chambers of the heart (the ventricles) are stiff, they can't fill with enough blood between beats.



# Causes

The heart muscle can be damaged by certain infections, heavy alcohol use, recreational drug use and some chemotherapy medicines. The genes also can play a role.



# Causes

Any of the following conditions also can damage or weaken the heart and cause heart failure.

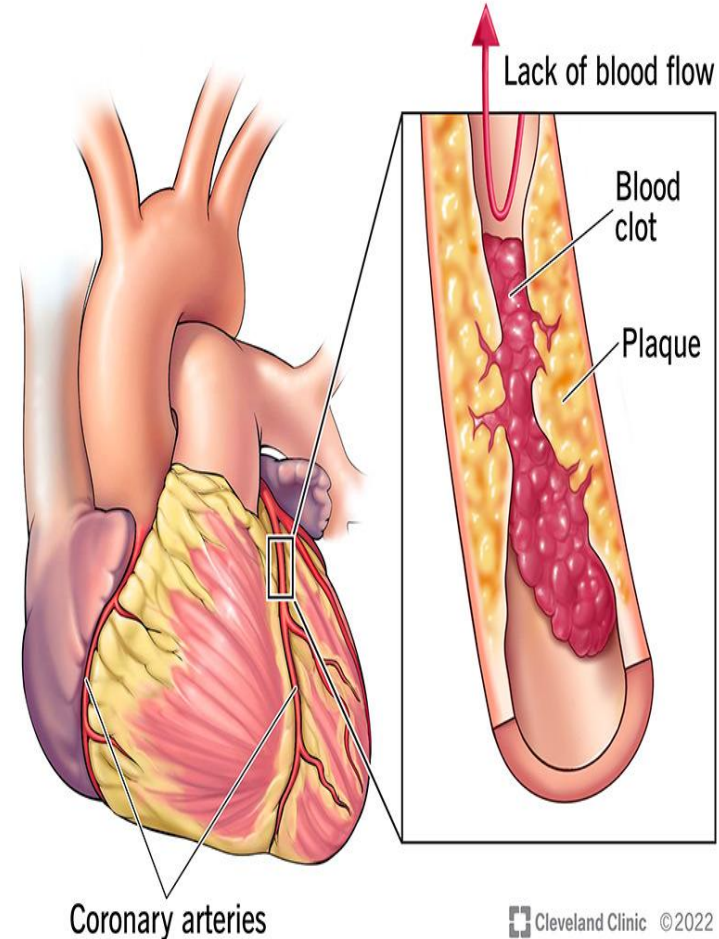
- **Coronary artery disease and heart attack.** Coronary artery disease is the most common cause of heart failure. The disease results from the buildup of fatty deposits in the arteries. The deposits narrow the arteries. This reduces blood flow and can lead to heart attack.

**A heart attack** occurs suddenly when an artery feeding the heart becomes completely blocked. Damage to the heart muscle from a heart attack may mean that the heart can no longer pump as well as it should.

- **High blood pressure.** Also called hypertension, this condition forces the heart to work harder than it should to pump blood through the body. Over time, the extra work can make the heart muscle too stiff or too weak to properly pump blood.

- **Heart valve disease.** The valves of the heart keep blood flowing the right way. If a valve isn't working properly, the heart must work harder to pump blood. This can weaken the heart over time.

## Coronary Artery Disease



# Causes

- **Inflammation of the heart muscle, also called myocarditis.** Myocarditis is most commonly caused by a virus, including the COVID-19 virus, and can lead to heart failure.
- **A heart condition that you're born with, also called a congenital heart defect.** If the heart and its chambers or valves haven't formed correctly, the other parts of the heart have to work harder to pump blood. This may lead to heart failure.
- **Irregular heart rhythms, called arrhythmias.** Irregular heart rhythms may cause the heart to beat too fast, creating extra work for the heart. A slow heartbeat also may lead to heart failure.



# Causes

**Sleep apnea.** This inability to breathe properly during sleep results in low blood-oxygen levels and an increased risk of irregular heartbeats. These things can lead to a weakened heart.

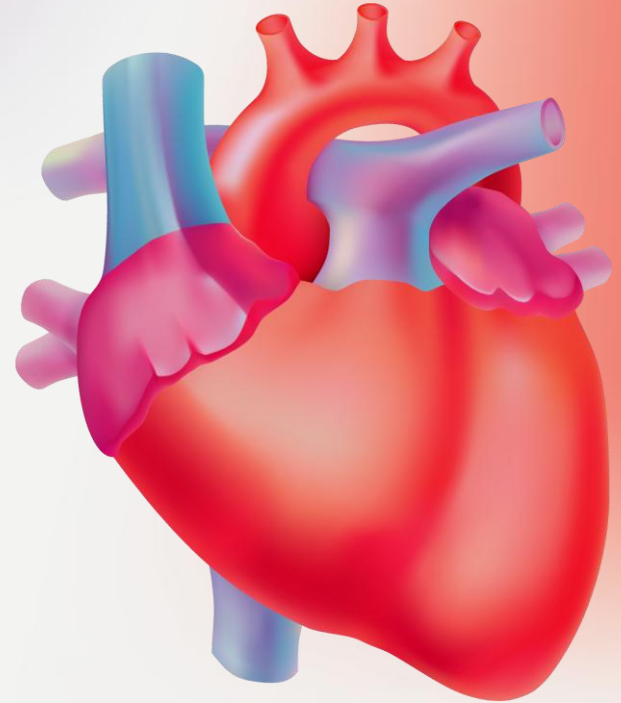
**Obesity.** People who have obesity have a higher risk of developing heart failure.

**Other diseases.** Some long-term diseases may contribute to chronic heart failure. Examples are diabetes, HIV infection, an overactive or underactive thyroid, or a buildup of iron or protein.



# Causes of Sudden Heart Failure

- Allergic reactions.
- Any illness that affects the whole body.
- Blood clots in the lungs.
- Severe infections.
- Use of certain medicines.
- Viruses that attack the heart muscle.

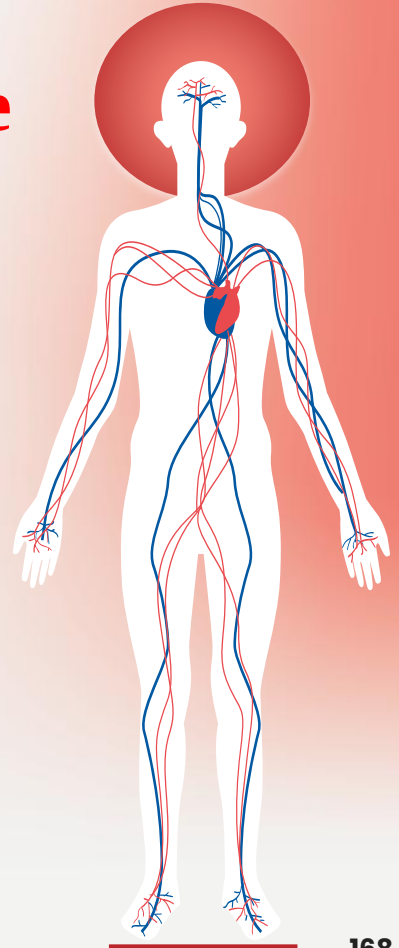


# Life Style Risk Factors For Heart Failure

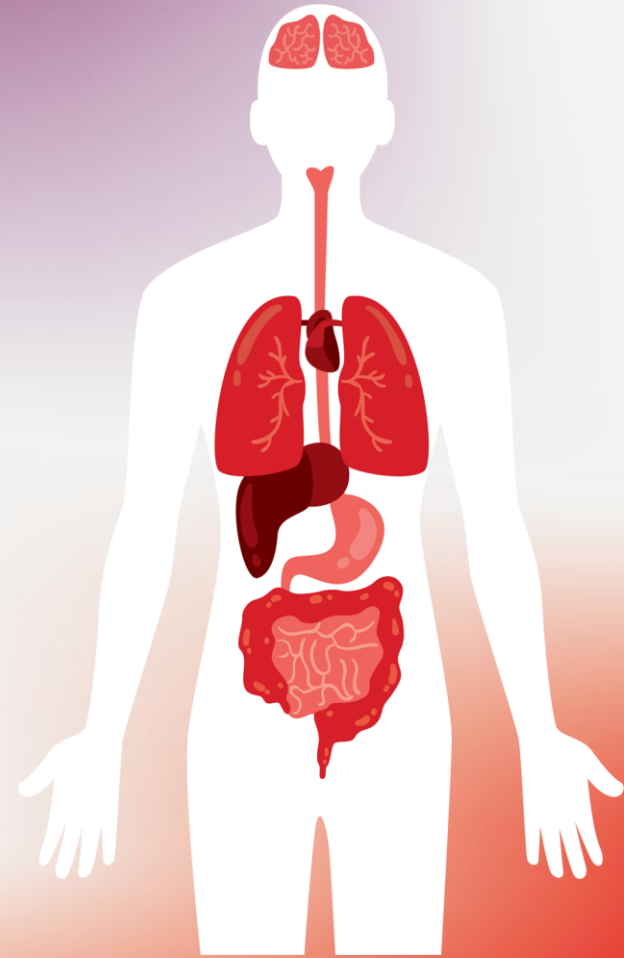
**Aging.** The heart's ability to work decreases with age, even in healthy people.

**Alcohol use.** Drinking too much alcohol may weaken the heart muscle and lead to heart failure.

**Smoking or using tobacco.** If smoke or using tobacco increases the risk of heart disease and heart failure.



# Symptoms of HF



# Classification of HF according to symptoms

This classification divide Heart Failure into four categories .

**Class 1 heart failure.** There are no heart failure symptoms.

**Class 2 heart failure.** Everyday activities can be done without difficulty. But exertion causes shortness of breath or fatigue.

**Class 3 heart failure.** It's difficult to complete everyday activities.

**Class 4 heart failure.** Shortness of breath occurs even at rest. This category includes the most severe heart failure.

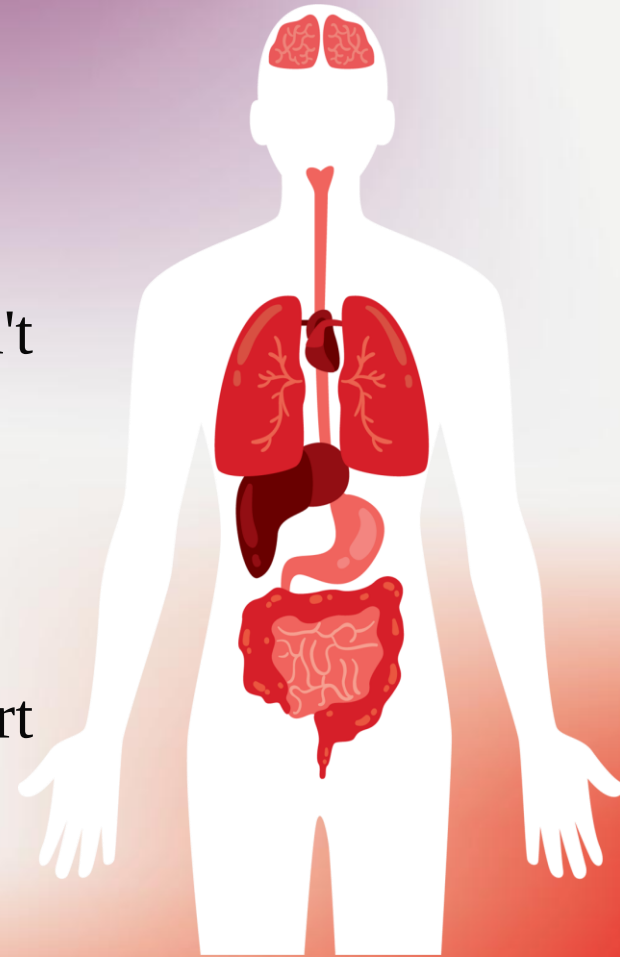


# Symptoms of HF

If person have heart failure, so heart can't supply enough blood to body's systems .

Symptoms may develop slowly.

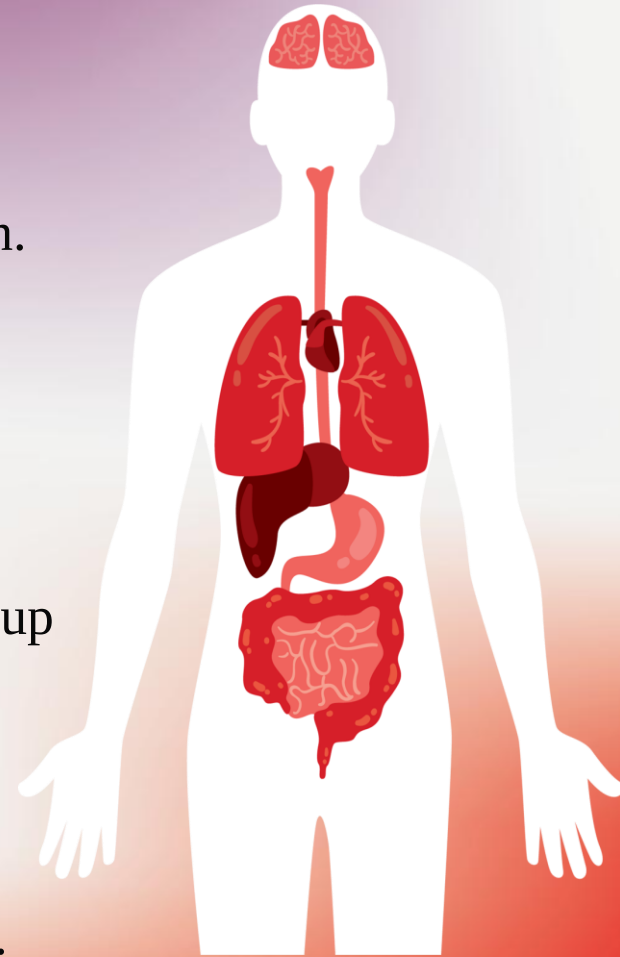
Sometimes, heart failure symptoms start suddenly!!

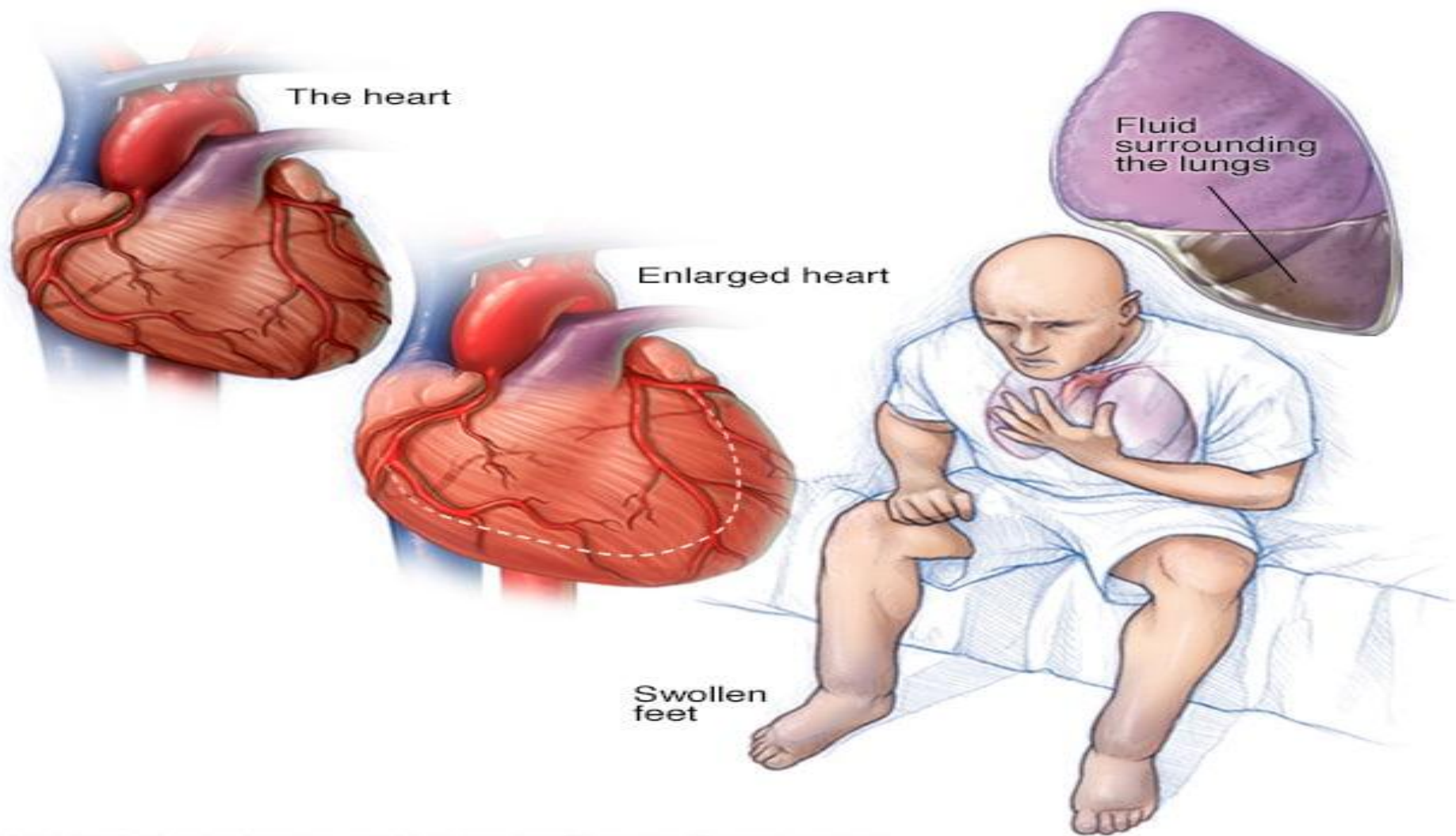


# Symptoms of HF

Heart failure symptoms may include:

- ✓ Shortness of breath with activity or when lying down.
- ✓ Fatigue and weakness.
- ✓ Swelling in the legs, ankles, feet and the belly area.
- ✓ Rapid or irregular heartbeat.
- ✓ Reduced ability to exercise.
- ✓ Wheezing.
- ✓ A cough that doesn't go away or a cough that brings up white or pink mucus with spots of blood.
- ✓ Very rapid weight gain from fluid buildup.
- ✓ Nausea and lack of appetite.
- ✓ Difficulty concentrating or decreased alertness.
- ✓ Chest pain if heart failure is caused by a heart attack.





# Complications



# Complications

Complications of heart failure depend on age, overall health and the severity of heart disease. They may include:

**1- Kidney damage or failure.** Heart failure can reduce the blood flow to the kidneys. Untreated, this can cause kidney failure..

**2- Other heart changes.** Heart failure can cause changes in the heart's size and function. These changes may damage heart valves and cause irregular heartbeats.



# Complications

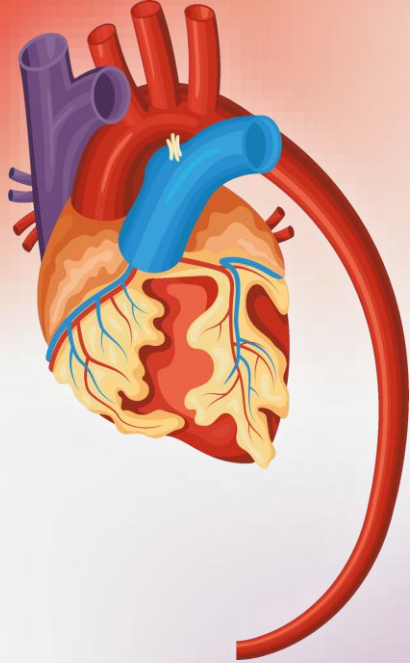
**3- Liver damage.** Heart failure can cause fluid buildup that puts too much pressure on the liver. This fluid backup can lead to scarring, which makes it more difficult for the liver to work properly.

**4- Sudden cardiac death.** If the heart is weak, there is a risk of dying suddenly due to a dangerous irregular heart rhythm.

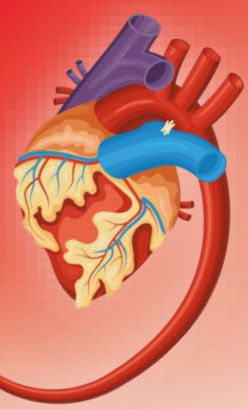




# Diagnosis of HF



To diagnose heart failure, the professional healthcare asks the patient questions about symptoms and medical history and checks to see if there are risk factors for heart failure, such as high blood pressure, coronary artery disease or diabetes. Also listens to lungs and heart with a stethoscope. A whooshing sound called a murmur may be heard when listening to the heart. care professional may look at the veins in neck and check for swelling in legs and belly.



# Diagnosis of HF



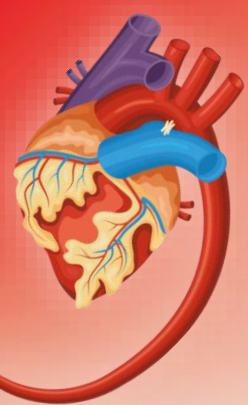
Tests that may be done to diagnose heart failure may include:

**Blood tests.** Blood tests can help diagnose diseases that can affect the heart. Blood tests also can look for a specific protein made by the heart and blood vessels. In heart failure, the level of this protein goes up.

**Chest X-ray.** X-ray images can show the condition of the lungs and heart.

**Electrocardiogram (ECG or EKG).** This quick and painless test records the electrical signals in the heart. It can show how fast or how slowly the heart is beating.

**Echocardiogram.** Sound waves create images of the beating heart. This test shows the size and structure of the heart and heart valves and blood flow through the heart.



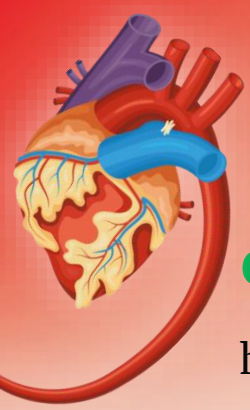
# Diagnosis of HF

**Ejection fraction.** Ejection fraction is a measurement of the percentage of blood leaving the heart each time it squeezes. This measurement is taken during an echocardiogram. The result helps classify heart failure and guides treatment. An ejection fraction of 50% or higher is considered ideal.

**Exercise tests or stress tests.** These tests often involve walking on a treadmill or riding a stationary bike while the heart is monitored. Exercise tests can show how the heart responds to physical activity.

**CT scan of the heart.** Also called a cardiac CT scan, this test uses X-rays to create cross-sectional images of the heart.

**Heart MRI scan, also called a cardiac MRI.** This test uses magnetic fields and radio waves to create detailed images of the heart.



# Diagnosis of HF

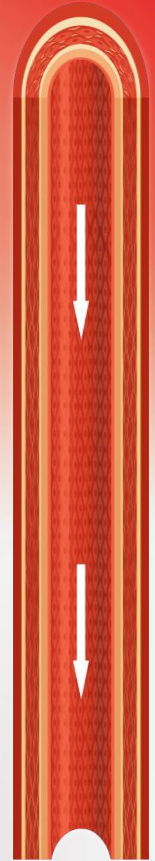
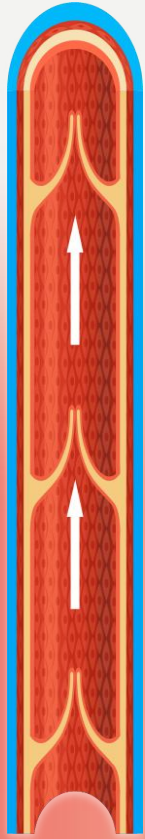
**Coronary angiogram.** This test helps spot blockages in the heart arteries. The healthcare professional inserts a long, thin flexible tube called a catheter into a blood vessel, usually in the femoral or wrist. It's then guided to the heart. Dye flows through the catheter to arteries in the heart. The dye helps the arteries show up more clearly on X-ray images and video.

**Myocardial biopsy.** In this test, a healthcare professional removes very small pieces of the heart muscle for examination. This test may be done to diagnose certain types of heart muscle diseases that cause heart failure.

Coronary angiogram

فيديو توضيحي





# Treatment

# Treatment



Treatment of heart failure may depend on the cause. Treatment often includes lifestyle changes and medicines. If another health condition is causing the heart to fail, treating it may reverse heart failure.

Some people with heart failure need surgery to open blocked arteries or to place a device to help the heart work better. With treatment, symptoms of heart failure may improve.

# Medications



A combination of medicines may be used to treat heart failure. The specific medicines used depend on the cause of heart failure and the symptoms. Medicines to treat heart failure include:

- **Angiotensin-converting enzyme (ACE) inhibitors.** These medicines relax blood vessels to lower blood pressure, improve blood flow and decrease the strain on the heart.
- **Angiotensin II receptor blockers (ARBs).** These medicines have many of the same benefits as ACE inhibitors. They may be an option for people who can't tolerate ACE inhibitors.
- **Angiotensin receptor plus neprilysin inhibitors (ARNIs).** This medicine uses two blood pressure medicines to treat heart failure. It's used to treat some people with HFrEF. It may help prevent the need for a hospital stay in those people.
- **Beta blockers.** These medicines slow the heart rate and lower blood pressure. They reduce the symptoms of heart failure and help the heart work better.
- **Diuretics.** Often called water pills, these medicines make patient urinate more frequently. This helps prevent fluid buildup in the body.



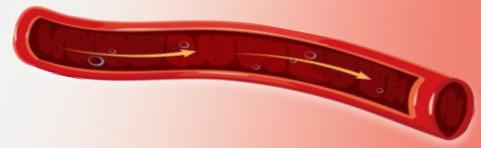
# Medications



- **Potassium-sparing diuretics.** Also called aldosterone antagonists. They may help people with severe heart failure with reduced ejection fraction (HFrEF) live longer.
- **Sodium-glucose cotransporter-2 (SGLT2) inhibitors.** These medicines help lower blood sugar. They are often prescribed with diet and exercise to treat type 2 diabetes. But they're also one of the first treatments for heart failure.
- **Digoxin (Lanoxin).** This medicine, also called digitalis, helps the heart squeeze better to pump blood. It also tends to slow the heartbeat. Digoxin reduces heart failure symptoms in people with HFrEF.

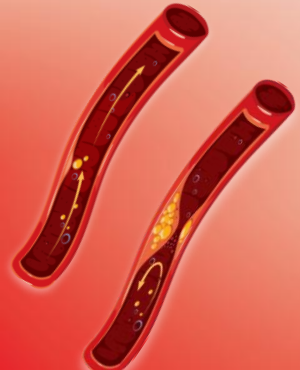


# Surgery or other procedures



Surgery or other procedures for heart failure may include:

- **Coronary artery bypass graft surgery.** may need this surgery if severely blocked arteries are causing HF. The surgery involves taking a healthy blood vessel from the leg, arm or chest and connecting it below and above the blocked arteries in the heart. The new pathway improves blood flow to the heart muscle.
- **Heart valve repair or replacement.** If a damaged heart valve causes heart failure, care professional may recommend repairing or replacing the valve. There are many different types of heart valve surgery. The type needed depends on the cause of the heart valve disease.



# Coronary artery bypass graft surgery

فيديو توضيحي



< How Does Heart Bypass Surgery Work? Coronary Artery By

AniMed



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المزيد من الفيديوهات

يمكنك التمرير هنا أو التمرير بسرعة للأعلى لعرض جميع الفيديوهات.



# Surgery or other procedures



- **Implantable cardioverter-defibrillator (ICD).** An ICD is used to prevent complications of heart failure. It isn't a treatment for heart failure itself. An ICD is a device similar to a pacemaker. It's implanted under the skin in the chest with wires leading through the veins and into the heart.
- The ICD checks the heartbeat. If the heart starts beating at a dangerous rhythm, the ICD tries to correct the beat.
- If the heart stops, the device shocks it back into regular rhythm. An ICD can also work as a pacemaker and speed up a slow heartbeat.
- **Cardiac resynchronization therapy (CRT).** Also called biventricular pacing, CRT is a treatment for heart failure in people whose lower heart chambers aren't pumping in sync with each other. A device sends electrical signals to the lower heart chambers. The signals tell the chambers to squeeze in a more coordinated way. This improves the pumping of blood out of the heart. CRT may be used with an ICD.

# Implantable cardioverter-defibrillator (ICD)

فيديو توضيحي



< Implantable Cardioverter Defibrillator - How it works

Gebrüder Betz Medical Animation

Implantable Cardioverter Defibrillator  
(ICD) Therapy

0:01 / 2:57

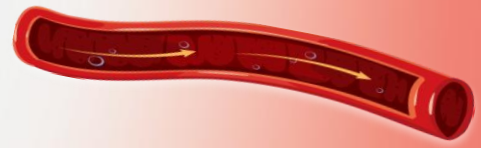


المزيد من الفيديوهات

يمكنك التمرير هنا أو التمرير بسرعة للأعلى لعرض جميع الفيديوهات.



# Surgery or other procedures



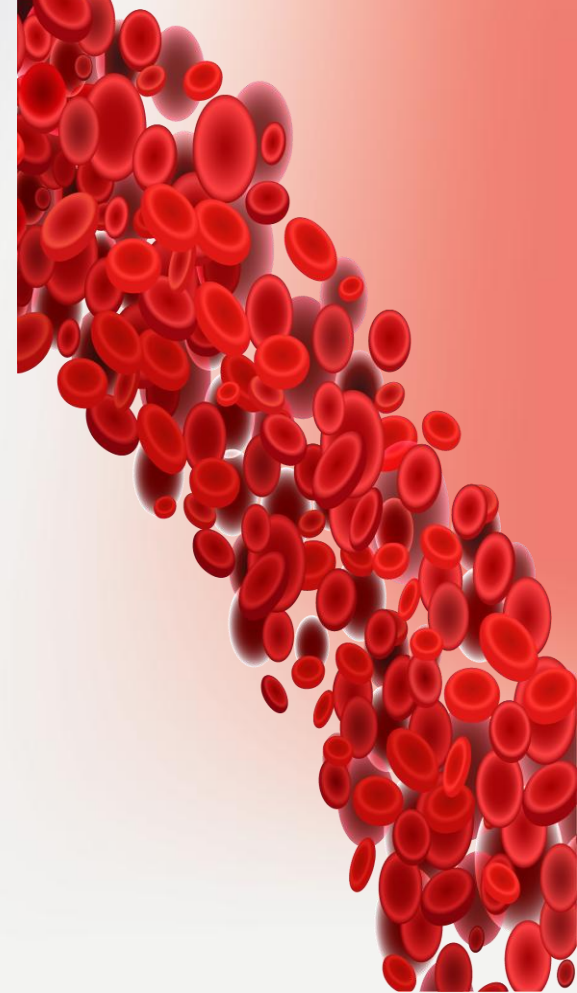
- **Ventricular assist device (VAD).** A VAD helps pump blood from the lower chambers of the heart to the rest of the body. It's also called a mechanical circulatory support device. Although a VAD can be placed in one or both lower chambers of the heart, it's usually placed in the lower left one.
- Healthcare professional may recommend a VAD if patient waiting for a heart transplant. Sometimes, a VAD is used as a permanent treatment for people who have heart failure but who aren't good candidates for a heart transplant.
- **Heart transplant.** Some people have such severe heart failure that surgery or medicines don't help. These people may need to have their hearts replaced with a healthy donor heart.

# Prevention

One way to prevent heart failure is to treat and control the conditions that can cause it. These conditions include coronary artery disease, high blood pressure, diabetes and obesity.

Some of the same lifestyle changes used to manage heart failure also may help prevent it. Try these heart-healthy tips:

- Don't smoke.
- Get plenty of exercise.
- Eat healthy foods.
- Maintain a healthy weight.
- Reduce and manage stress.
- Take medicines as directed.



**Any Questions ?**



# Thanks For Listening



## نهاية المحاضرة الثالثة

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# المحاضرة الرابعة

# Blood Pressure

م.د. آمال فاضل غانم



# مسار المحاضرة

| الوقت    | العنوان الفرعي                                                                                                                                 |
|----------|------------------------------------------------------------------------------------------------------------------------------------------------|
| 10 دقيقة | تمهيد المحاضرة                                                                                                                                 |
| 30 دقيقة | Part 1 : Blood Pressure                                                                                                                        |
| 5 دقيقة  | نشاط جماعي :- الاستماع لأراء الطلبة حول ضغط الدم وكيفية السيطرة عليه وذلك لأهمية الموضوع في حياتنا السريعة الحالية                             |
| 30 دقيقة | Part 2 : Hypertension                                                                                                                          |
| 15 دقيقة | شرح ارتفاع ضغط الدم وقياساته ومقارنته مع انخفاض ضغط الدم<br>اسباب الارتفاع وتشخيصه وعلاجه وكيفية ممارسة اسلوب معيشة للابتعاد عن امراض ضغط الدم |
| 5 دقيقة  | Rest                                                                                                                                           |
| 15 دقيقة | تنبيه الطلاب على الواجبات المطلوبة منهم                                                                                                        |
| 10 دقيقة | حضور الطلبة وخاتمة المحاضرة                                                                                                                    |

# الهدف من المحاضرة

تعريف الطلبة بأهمية ضغط الدم و قياس ضغط الدم المرتفع ومقارنته مع انخفاض الضغط وكذلك اسباب ارتفاع الضغط وكيفية التشخيص والعلاج وكيف يكون اسلوب الحياة واختيار الاغذية لتجنب تطور هذا المرض.



# استعراض المحاضرة الثالثة





وزارة التعليم العالي والبحث العلمي

الجامعة التقنية الجنوبية

المعهد التقني الطبي – البصرة

قسم تقنيات التخدير

[Anesthes.bti@stu.edu.iq](mailto:Anesthes.bti@stu.edu.iq)

[E.Mail : Presidency@stu.edu.iq](mailto:Presidency@stu.edu.iq)

العراق – البصرة – طريق الزبير العام – مقابل المدينة الرياضية

# Principles of Internal Medical Surgery

**Lecturer**

**Dr . Amaal Fadhil Ghanim**

**Email :** [Dr.amaal.f.g@stu.edu.iq](mailto:Dr.amaal.f.g@stu.edu.iq)

**The Second Stage**

2026 - 2025



## Lec. 4

# Blood Pressure



# Cardiac output (CO)



Cardiac output :- (CO) is the volume of blood pumped by the heart per minute (ml blood/min).

The heart rate :- is simply the number of beats per minute.

The stroke volume :- is the volume of blood, in milliliters (ml), pumped out of the heart with each beat.

Increasing either heart rate or stroke volume increases cardiac output.

The total volume of blood in the circulatory system of an average person is about 5 liters (5000 ml).



# Calculate of Cardiac Output

Cardiac Output in ml/min = heart rate (beats/min) X stroke volume (ml/beat)

- An average person has a resting heart rate of 70 beats/minute and a resting stroke volume of 70 ml/beat.

The cardiac output for this person at rest is:

- Cardiac Output = 70 (beats/min) X 70 (mL/beat) = 4900 ml/minute.



# PVR & TPR

Peripheral vascular resistance (PVR) :- refers to the resistance that produced by blood vessels and must be overcome to push blood through the circulatory system and create flow.

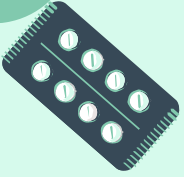
Total peripheral resistance (TPR) determined by diameter of the blood vessels and viscosity of blood.



# SVR

Systemic vascular resistance (SVR) :- is use in calculations of blood pressure, blood flow, and cardiac function.

- Vasoconstriction ( decrease in blood vessel diameter) increases SVR.
- Whereas vasodilation (increase in diameter) decreases SVR.





# Blood pressure (BP)

Blood pressure (BP) is a measure of pressure or force of blood against the inner walls of blood vessels especially arteries.



# Why is blood pressure important?



Blood pressure matters because it can have a big effect on body health. For example:

➤ **High blood pressure (hypertension)** is a major risk factor for cardiovascular disease.

Severely high blood pressure, known as a hypertensive emergency, can be life-threatening.

➤ **Low blood pressure (hypotension)** can cause dizziness, fainting and fall-related injuries.

Severely low blood pressure limits blood flow to major organs and can lead to life-threatening complications like shock.



# Types Of The Blood Pressure

- ✓ **Systolic pressure** :- it is the blood pressure during the contraction of the left ventricle of the heart.
- ✓ **Diastolic pressure** - it is the blood pressure after the contraction of the heart while the chambers of the heart refill with blood (while the heart muscle rests between beats).
- ✓ **Arterial pressure** :- the pressure of the circulating blood on the arteries; arterial pressure is the product of cardiac output and peripheral vascular resistance"
- ✓ **Venous pressure** :- the pressure exerted on the walls of the veins by the circulating blood.

# High Blood Pressure (Hypertension )

# High Blood Pressure (Hypertension )

**High Blood Pressure (Hypertension )** :- is a condition where the force of blood against artery walls is persistently too high, that is higher than normal. which can lead to serious health problems like heart disease, stroke, and kidney failure if untreated.

Blood pressure is measured in millimeters of mercury (mm Hg).

# Blood pressure category

The following categories describe blood pressure (these apply to all adults, regardless of sex) :-

| Blood pressure category         | Top number (systolic) |        | Bottom number (diastolic) |
|---------------------------------|-----------------------|--------|---------------------------|
| Low                             | Below 90              | OR     | Below 60                  |
| Normal                          | Below 120             | AND    | Below 80                  |
| Elevated                        | 120 to 129            | AND    | Below 80                  |
| Stage 1 hypertension            | 130 to 139            | OR     | 80 to 89                  |
| Stage 2 hypertension            | 140 or higher         | OR     | 90 or higher              |
| Hypertensive crisis (emergency) | 180 or higher         | AND/OR | 120 or higher             |

# Hypertension Stage

**Hypertension stage 1** :- may consider taking medication based on the risk of heart disease or stroke and should add medication if there are other conditions such as diabetes, heart failure and kidney disease.

**Hypertension stage 2**:- should prescribe blood pressure medication and lifestyle changes.

**Severe hypertension** :- this is emergency case, when blood pressure is higher than 180/120 mm hg.



# Physiological variation

- 1- Age: The BP increase with age.
- 2- Sex: in women is slightly less than men.
- 3- It is more at evening and less in morning.
- 4- It is more after meal exercise and well-built person and Emotional excitement.
- 5- It is less in sleep and in lying position, and it is highest in the standing position.



# Pathological Variation

- 1- Heart Attack and Heart Disease.
- 2- Stroke and Brain Problems.
- 3- Kidney Disease .
- 4- Infection, inflammation and fever.





# Causes

There are two main types of high blood pressure dependent on the causes :-

1- Type One Of High Blood Pressure is called primary hypertension or essential hypertension. It tends to develop gradually over many years. Plaque buildup in the arteries, called atherosclerosis, increases the risk of high blood pressure.



# Causes



2- Type Two High Blood Pressure is caused by an underlying condition. It tends to appear suddenly and cause higher blood pressure .

Conditions and medicines that can lead to type 2 hypertension include:

1. Adrenal gland tumors
2. Blood vessel problems present at birth, also called congenital heart defects.
3. Cough and cold medicines, some pain relievers, birth control pills.
4. Illegal drugs, such as cocaine and amphetamines.
5. Kidney disease.
6. Obstructive sleep apnea.
7. Thyroid problems.



# Severe Hypertension Symptoms

1. Chest pain.
2. Shortness of breath.
3. Back pain.
4. Numbness.
5. Weakness.
6. Change in vision.
7. Difficulty speaking.



# Risk factors

High blood pressure has many risk factors, including:

1. **Age.** The risk of high blood pressure increases with age.
2. **Race.** High blood pressure is particularly common among Black people. It develops at an earlier age in Black people than it does in white people.
3. **Family history.** You're more likely to develop high blood pressure if you have a parent or sibling with the condition.
4. **Obesity or being overweight.** Excess weight causes changes in the blood vessels, the kidneys and other parts of the body.
5. **Lack of exercise.** Not exercising can cause weight gain. Increased weight raises the risk of high blood pressure.
6. **Tobacco use or vaping.** Smoking, chewing tobacco or vaping immediately raises blood pressure for a short while.

# Risk factors

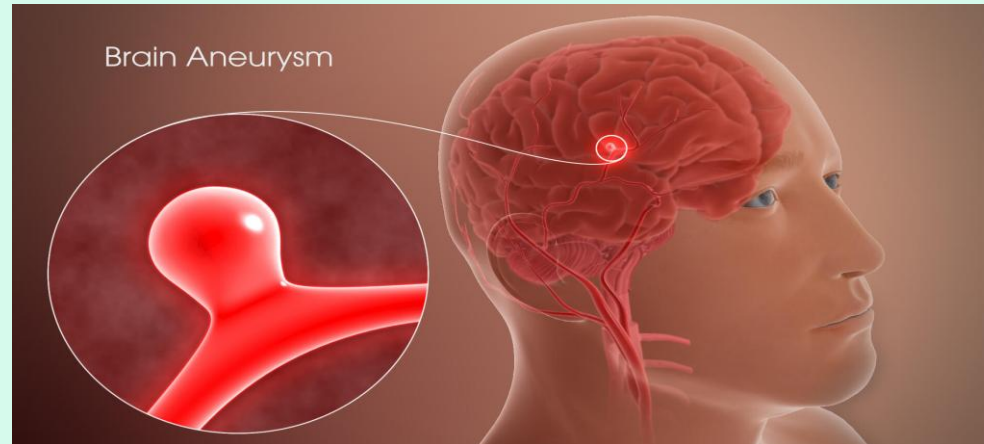
High blood pressure has many risk factors, including:

- 7- **Too much salt.** A lot of salt — also called sodium — in the body can cause the body to retain fluid. This increases blood pressure.
- 8- **Low potassium levels.** Potassium helps balance the amount of salt in the body's cells.
- 9- **Drinking too much alcohol.** Alcohol use, has been linked with increased blood pressure, particularly in men.
- 10- **Stress.** High levels of stress can lead to a temporary increase in blood pressure.
- 11- **Certain chronic conditions.** Kidney disease, diabetes and sleep apnea are some of the conditions that can lead to high blood pressure.
- 12- **Pregnancy.** Sometimes pregnancy causes high blood pressure.

# Complications

The excessive pressure on the artery walls caused by high blood pressure can damage blood vessels and body organs. The higher blood pressure and the longer it goes uncontrolled, and lead to great complications including:-

1. **Heart attack or stroke.** Hardening and thickening of the arteries due to high blood pressure or other factors can lead to a heart attack, stroke or other complications.
2. **Aneurysm.** Increased blood pressure can cause a blood vessel to weaken and bulge, forming an aneurysm. If an aneurysm ruptures, it can be life-threatening.
- 3 . **Heart failure.** When you have high blood pressure, the heart has to work harder to pump blood.
- 4 . **Kidney problems.** High blood pressure can cause the blood vessels in the kidneys to become narrow or weak. This can lead to kidney damage.



# Complications

**5-Eye problems.** Increased blood pressure can cause thickened, narrowed or torn blood vessels in the eyes.

This can result in vision loss.

**6-Metabolic syndrome.** This syndrome is a group of disorders of the body's metabolism. It involves the irregular breakdown of glucose.

**7- Changes with memory or understanding.** Uncontrolled high blood pressure may affect the ability to think, remember and learn.

**8- Dementia.** Narrowed or blocked arteries can limit blood flow to the brain. This can cause a certain type of dementia called vascular dementia. A stroke that interrupts blood flow to the brain also can cause vascular dementia.

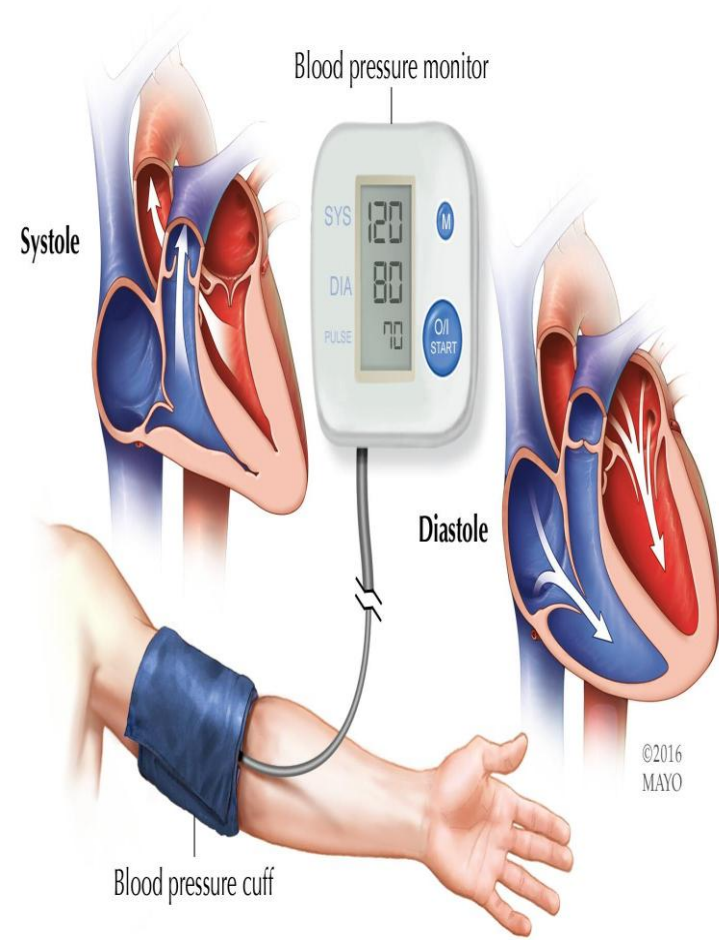


# Diagnosis

To diagnose high blood pressure, health care provider examines the patient and asks questions about medical history and any symptoms.

provider listens to heart using a stethoscope.

blood pressure is checked using a cuff, usually placed around your arm. It's important that the cuff fits. If it's too big or too small, blood pressure readings can vary. The cuff is inflated using a small hand pump or a machine.



# Diagnosis

The first time blood pressure is checked, it should be measured in both arms to see if there's a difference. After that, the arm with the higher reading should be used.

Blood pressure is measured in millimeters of mercury (mm Hg). A blood pressure reading has two numbers.

Top number, called systolic pressure. The first, or upper, number measures the pressure in the arteries when the heart beats.

Bottom number, called diastolic pressure. The second, or lower, number measures the pressure in the arteries between heartbeats.



# Treatment

1. **Angiotensin converting enzyme inhibitors** :- help relax your blood vessels to make it easier for your heart to pump blood to lower your BP.
2. **Angiotensin II receptor blockers** :- block a hormone that tightens blood vessels, helping them to relax and lower BP.
3. **Calcium channel blockers** :- stop calcium from entering heart and blood vessel cells to help blood vessels relax and reduce BP.
4. **Diuretics** :- help body get rid of excess salt and water to reduce the amount of fluid in blood and lower BP.
5. **Beta-blockers** :- slow heart rate and reduce the force of each heartbeat to lower BP.
6. **Mineralocorticoid receptor antagonists** :- help body to get rid of salt while keeping potassium.



**Any Question**

# Thanks for Listening



## نهاية المحاضرة الرابعة

# المحاضرة الخامسة الجزء الاول

## Angina

م.د. آمال فاضل غانم

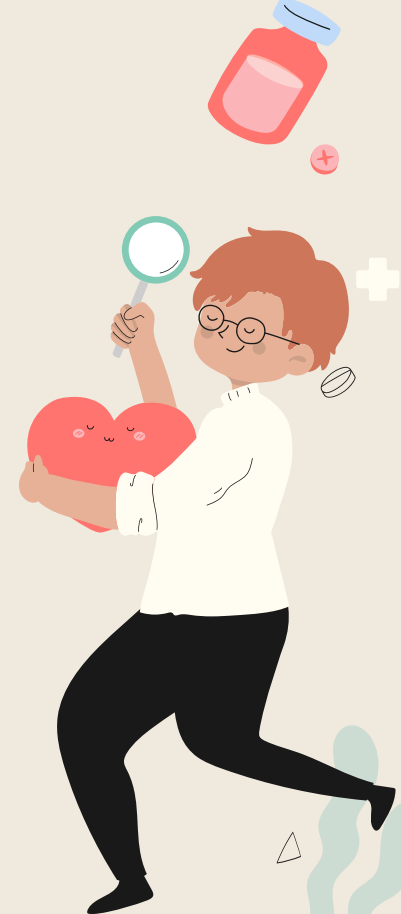


# مسار المحاضرة

| الوقت    | العنوان الفرعي                                                                                                                                                                                  |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10 دقيقة | تمهيد المحاضرة                                                                                                                                                                                  |
| 30 دقيقة | Part 1 : Angina                                                                                                                                                                                 |
| 5 دقيقة  | نشاط جماعي :- اسئلة عامة حول الذبحة الصدرية وهل هي مرض أو عرض مرضي والفرق في ألمها بين النساء والرجال والتعرف على انواعها وما هو تعريف كل نوع .                                                 |
| 30 دقيقة | Part 2 : Risk factors for Angina                                                                                                                                                                |
| 15 دقيقة | استعراض اسباب الذبحة الصدرية والعوامل المساعدة عليها وكيفية اسعاف الشخص المصاب ومعالجة الحالة بعد التشخيص وعمل اسلوب حياة للوقاية من الاسباب وفحوصات دورية للتعرف على الاسباب قبل وقوع الحالة . |
| 5 دقيقة  | Rest                                                                                                                                                                                            |
| 15 دقيقة | Quiz                                                                                                                                                                                            |
| 10 دقيقة | حضور الطلبة وخاتمة المحاضرة                                                                                                                                                                     |

## الهدف من المحاضرة

تعريف الطلاب بأن الذبحة الصدرية عبارة عن عرض لمشاكل القلب الاخرى وخصوصاً انسداد الشرايين التاجية المغذية لعضلة القلب. والتنويه الى اهمية اسعاف المريض وما لذلك من احتمالية انقاذ حياته .



# امتحان يومي بالمحاضرة السابقة

الامتحان اليومي يكون بثلاث نماذج مختلفة  
وللدراستين الصباحية والمسائية ، حيث تكون  
الاسئلة شاملة لكل المادة تقريباً والاختيار يكون  
بشكل عشوائي.



# Quiz

Quiz 4 :-

(C1)

9\11\2025

Q1:- Conditions and medicines that can lead to type 2 hypertension include: (3only)

- 1-
- 2-
- 3-

Q2:- Systolic pressure vas Diastolic pressure

Q3:-

| Blood pressure category         | Top number (systolic) | Bottom number (diastolic) |
|---------------------------------|-----------------------|---------------------------|
| Stage 1 hypertension            |                       |                           |
| Stage 2 hypertension            |                       |                           |
| Hypertensive crisis (emergency) |                       |                           |

Quiz 4 :-

(B)

9\11\2025

Q1:- Systolic pressure is :-

Q2 :- What are Physiological Variation of Blood Pressure?(3 only)

- 1-
  - 2-
  - 3-
- Q3:- Conditions and medicines that can lead to type 2 hypertension include: (3only)

- 1-
- 2-
- 3-

Quiz 4 :-

(A1)

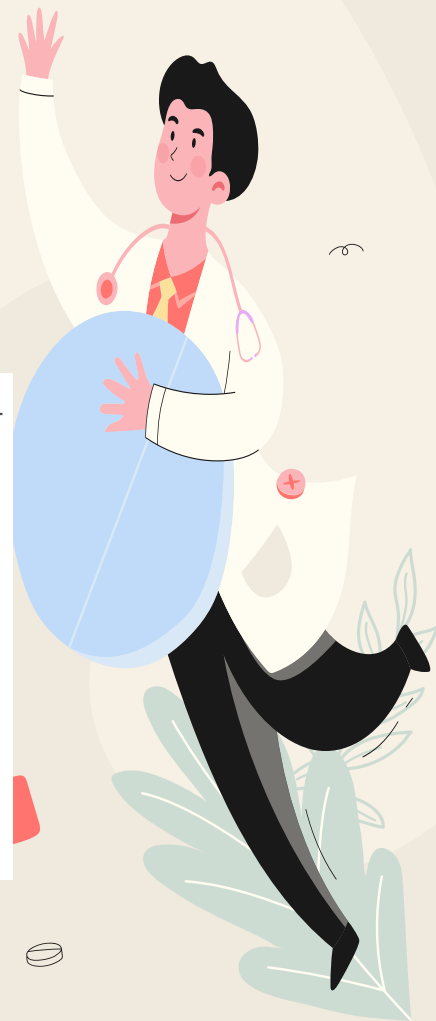
9\11\2025

Q1:- High Blood Pressure is :-

Q2:- What are Hypertension Stage ?

Q3:- What are the Severe Hypertension Symptoms ? (3only)

- 1-
- 2-
- 3-



# استعراض المحاضرة





# وزارة التعليم العالي والبحث العلمي

## الجامعة التقنية الجنوبية

### المعهد التقني الطبي – البصرة

### قسم تقنيات التخدير

[Anesthes.bti@stu.edu.iq](mailto:Anesthes.bti@stu.edu.iq)

[E.Mail : Presidency@stu.edu.iq](mailto:Presidency@stu.edu.iq)

العراق – البصرة – طريق الزبير العام – مقابل المدينة الرياضية





# Principles of Internal Medical Surgery

Lecturer

Dr . Amaal Fadhil Ghanim

**Email :** [Dr.amaal.f.g@stu.edu.iq](mailto:Dr.amaal.f.g@stu.edu.iq)

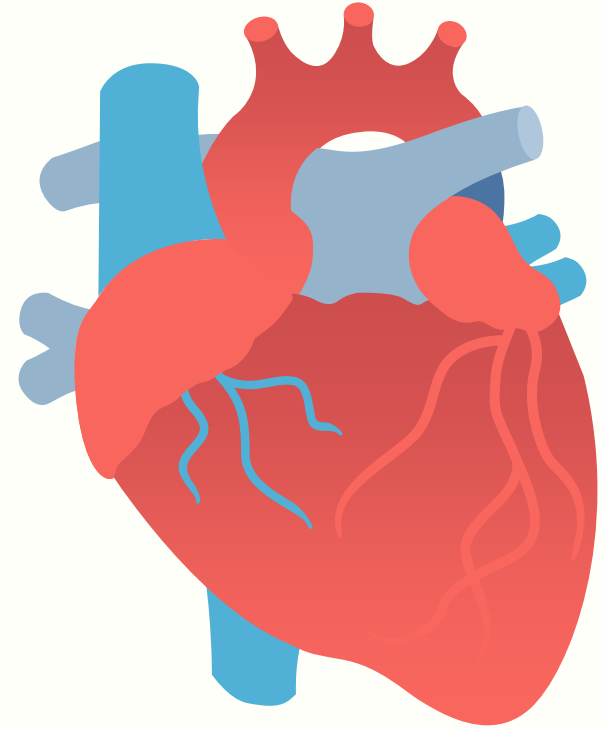
**The Second Stage**

2026 - 2025



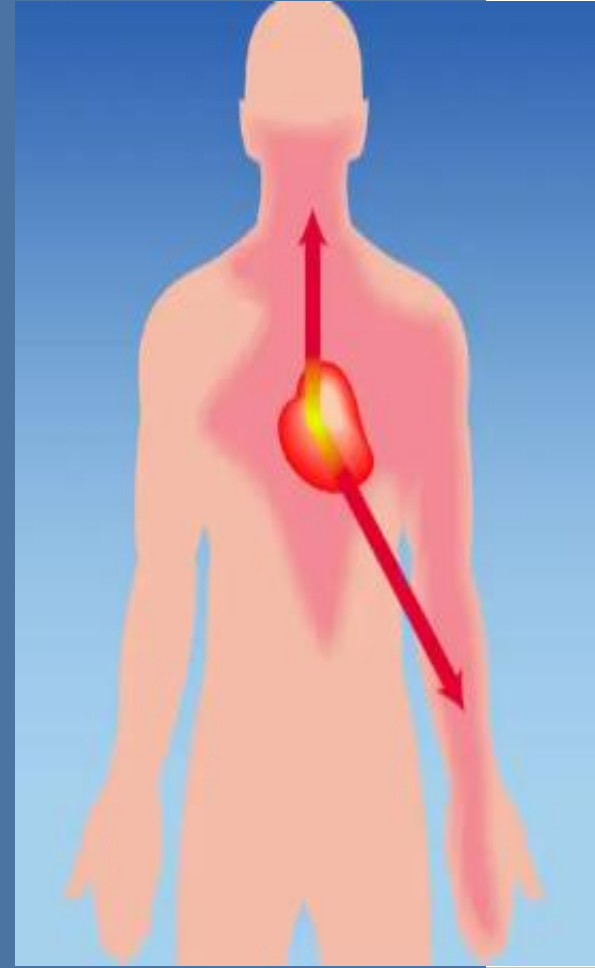
Lec. : 5 - Part 1

# Angina



# Angina

- Angina, sometimes called angina pectoris, is a symptom. It's a pain or an uncomfortable feeling when blood flow to the heart is reduced.
- It's not dangerous but it can be a sign of heart problem like Coronary Heart Disease CHD.
- It's usually felt in chest, some people feel the pain in their arm, neck, stomach, back or jaw.



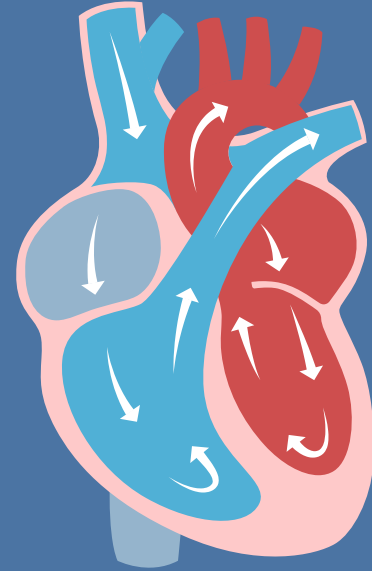
# Angina

- It may feel like a heavy weight lying on the chest.





# Types of Angina



# Types of Angina

There are several types of angina including:

1. **Stable Angina.**
2. **Unstable Angina.**
3. **Vasospastic Angina.**
4. **Microvascular Angina.**

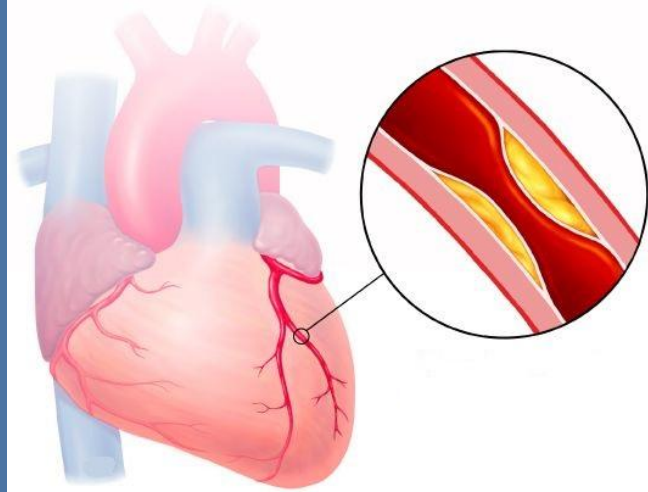


# Types of Angina

## 1- Stable Angina

This is the most common type of angina. It tends to happen when the heart works harder, such as during walking uphill, or in emotional stress and this type of Angina goes away at rest.

- Stable angina lasts 5 minutes or less, and improves if take rest or medicine.



# Types of Angina

## 2- Unstable Angina

Unstable angina can feel different to normal angina symptoms.  
It can happen even in resting.

Unstable angina feels more severe and lasts longer.  
The symptoms might not improve when take rest or medicines.  
So if symptoms do not improve at rest or take medicines,  
should go to hospital.



# Types of Angina

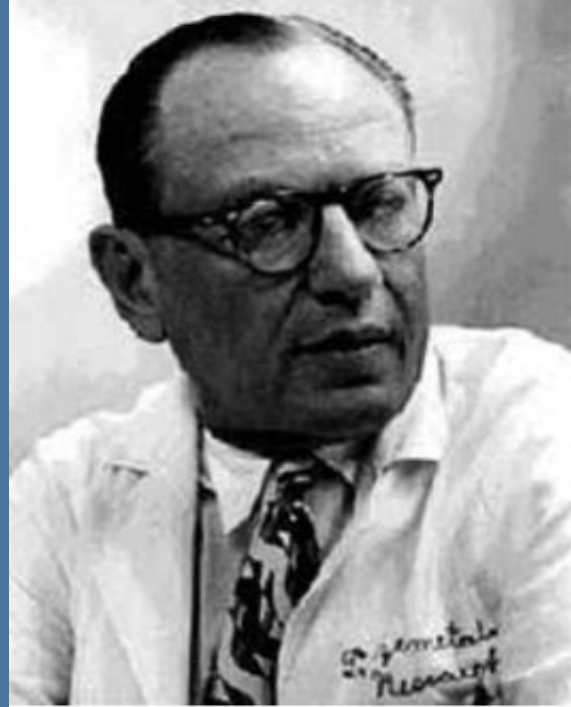
## 3- Vasospastic Angina

Also known as Coronary Artery Spasm or Prinzmetal's Angina, This type of Angina is rare.

It can happen during the night when resting, and when a coronary artery

supplying blood and oxygen to the heart goes into

spasm and narrows or tightens, and lets less blood through.



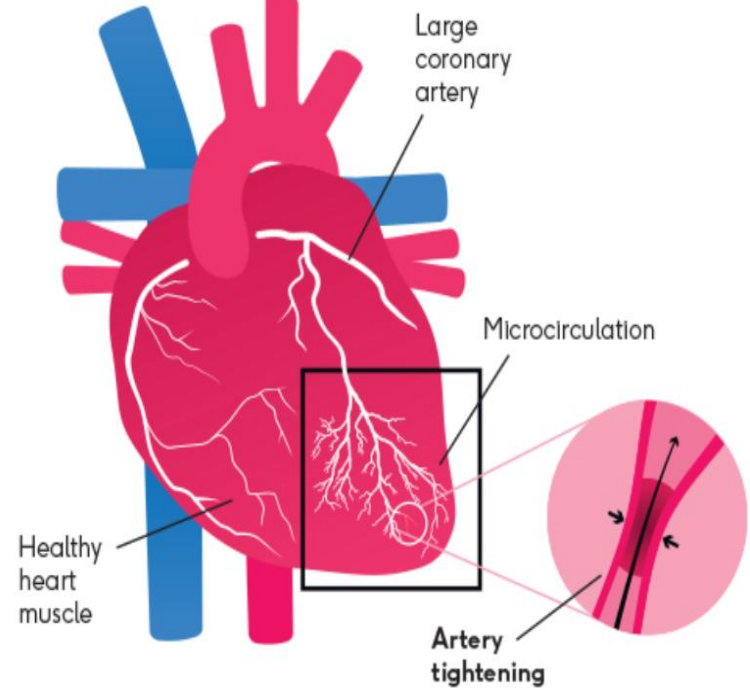
Dr Myron Prinzmetal (1908-1987)

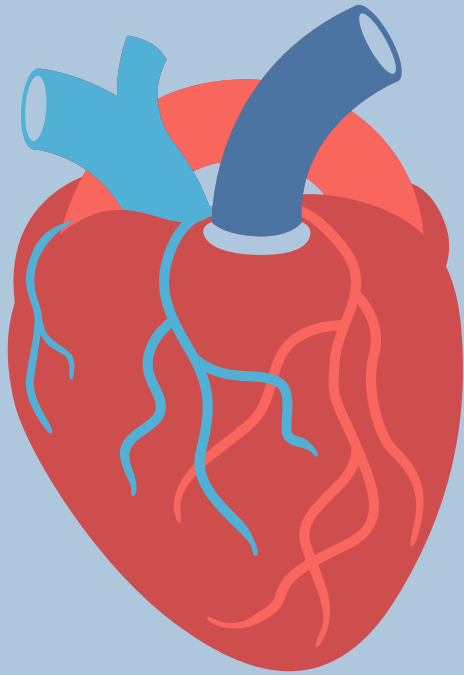
# Types of Angina

## 4- Microvascular Angina

Microvascular angina (also known as cardiac syndrome X) usually happens when patient under physical pressure, like when exercising, or been

stressed or anxious. The pain is often caused by spasms in the smallest coronary arteries restricting blood flow.





# Causes of Angina

---

# Causes of Angina

Angina is caused by reduced blood flow to the heart muscle. Blood carries oxygen, which the heart muscle needs to survive. When the heart muscle isn't getting enough oxygen, it causes a condition called ischemia.

The most common cause of reduced blood flow to the heart muscle is **Coronary Artery Disease (CAD)**. The heart arteries, called the coronary arteries, can become narrowed by fatty deposits called plaques. This condition is called **atherosclerosis**.

Plaque in a blood vessel may rupture or cause a blood clot. These events can quickly block or reduce flow through a narrowed artery. This can suddenly and severely decrease blood flow to the heart muscle.

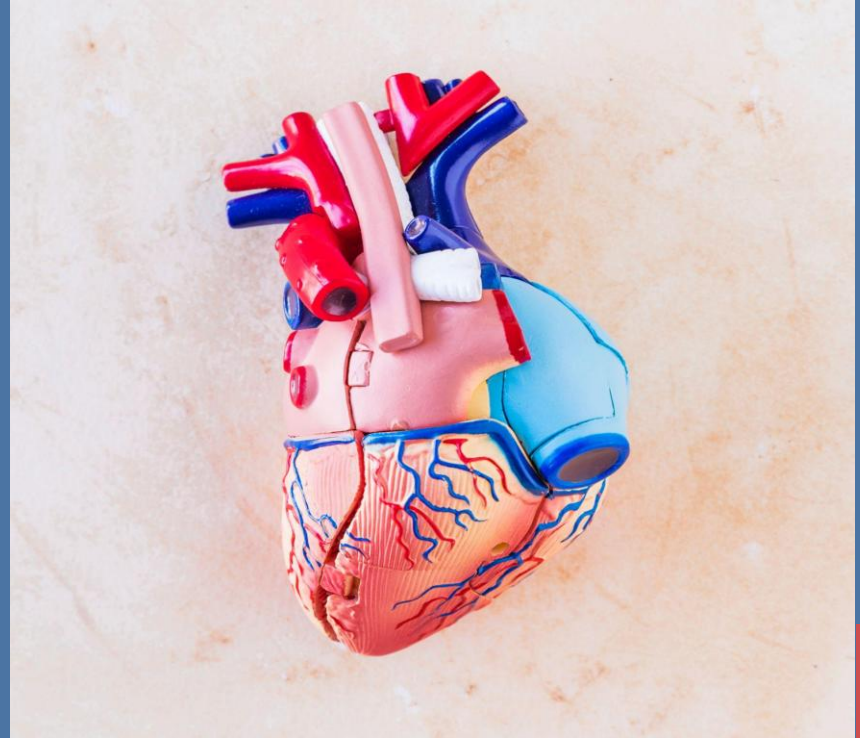
The heart muscle may still be able to work during times of low oxygen demand without triggering angina symptoms. An example is when resting. But when the demand for oxygen goes up, such as when exercising, angina can result.



# Causes of Angina

There are common triggers for angina pain, like:

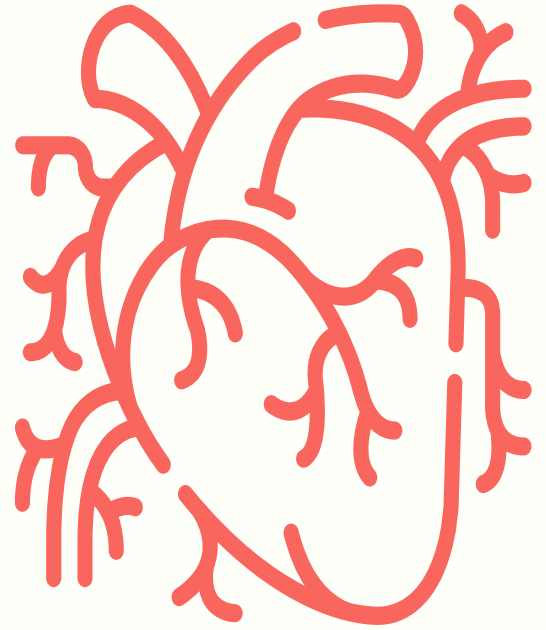
- Physical activity.
- Emotional stress.
- Cold weather.
- Eating a meal.





# Angina symptoms

---





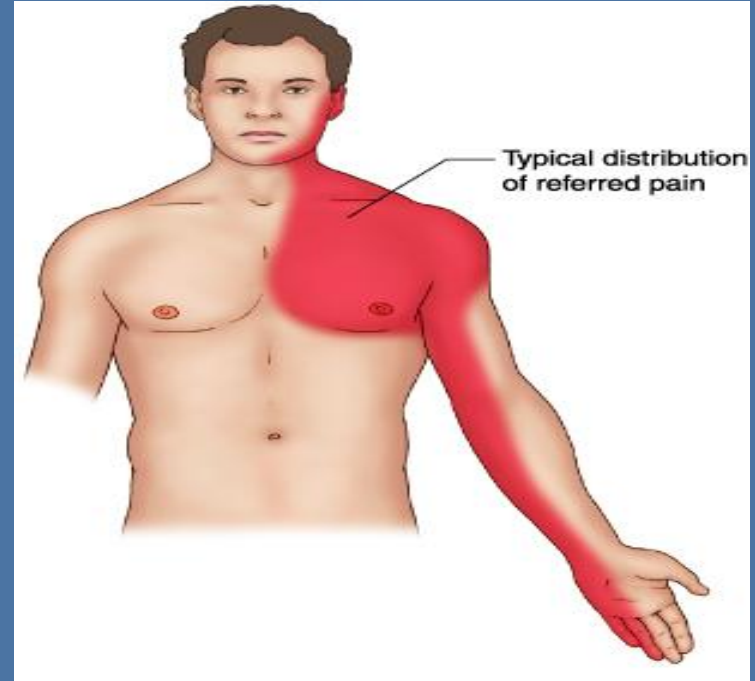
# Angina symptoms



include chest pain and discomfort. The chest pain or discomfort may feel like:

- Burning.
- Fullness.
- Pressure.
- Squeezing.

Pain also may be felt in the arms, neck, jaw, shoulder or back.



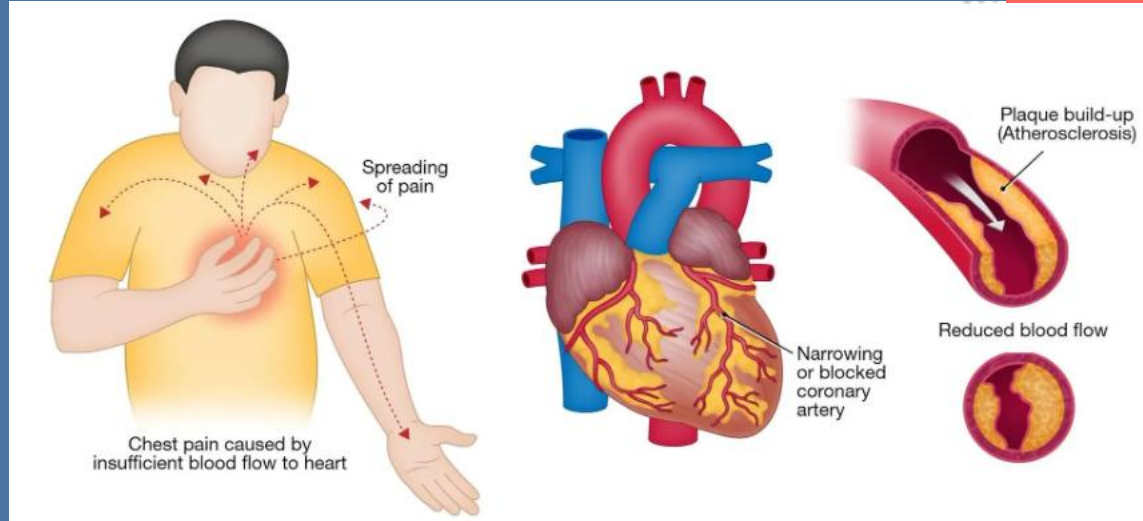


# Angina symptoms



Other symptoms of angina:

- ❖ Dizziness.
- ❖ Fatigue.
- ❖ Nausea.
- ❖ Shortness of breath.
- ❖ Sweating.



The severity, duration and type of angina can vary. New or different symptoms may signal unstable angina or a heart attack.

Any new or worsening angina symptoms need to be checked immediately by a healthcare professional. The healthcare team can determine whether you have stable or unstable angina.

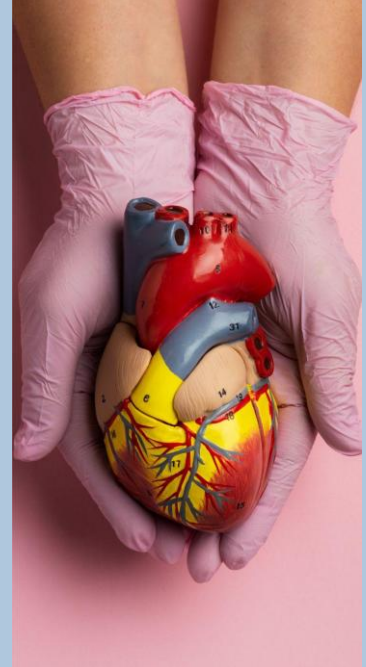
# Angina in women

Symptoms of angina in women can be different from the classic angina symptoms.

These differences may lead to delays in seeking treatment.

For example, chest pain may not be the only symptom or the most common symptom. Other symptoms of angina in women may include:

- Discomfort in the neck, jaw, teeth or back.
- Nausea.
- Shortness of breath.
- Stabbing pain instead of chest pressure.
- Stomach pain.





# Risk factors for Angina

# Risk factors for Angina

There are several risk factors that can increase risk of coronary heart disease and angina. They include:

- 1- Stress ( also Emotional stress ).
- 2- Smoking.
- 3- Diabetes.
- 4- Obesity.
- 5- High cholesterol.
- 6- High blood pressure.
- 7- Family history of heart disease.
- 8- Older age (45+ for men and 55+ for women).
- 9- Cold temperatures.





# Complications



# Complications



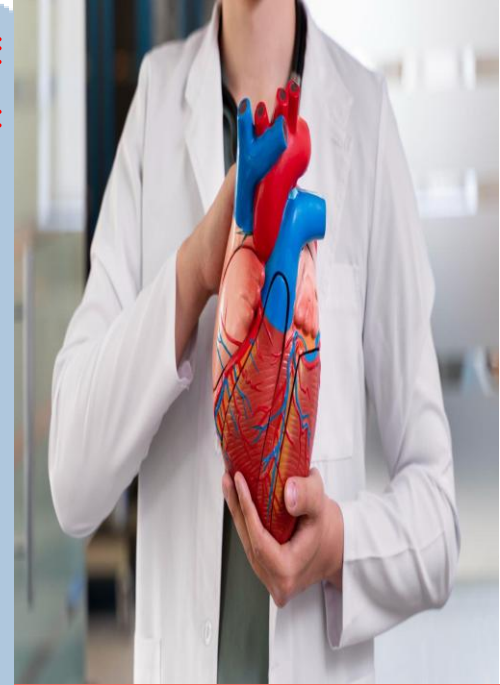
Though angina is not life threatening it is a major cause of morbidity and mortality as it causes some serious complications. There are several complications of angina pectoris. Cardiac events such as myocardial infarction and heart attack are the two main complications of angina.

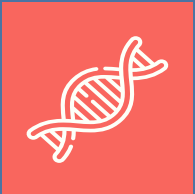
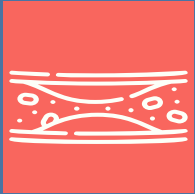
The possible complications of angina include:

**Abnormal heart rhythms:** In angina, the insufficient blood supply to the heart muscles disrupts the electrical activity of the heart thereby causing arrhythmias (abnormal heart rhythm).

**Heart attack:** The insufficient blood supply to heart muscles due to the narrowing of coronary arteries causing the heart muscles to die thereby leading to heart attack.

**Heart failure:** Repeated episodes of angina weaken the muscles of the heart and increase the risk of heart attack.





# Diagnosis of Angina



# Diagnosis of Angina

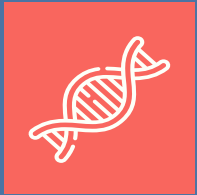
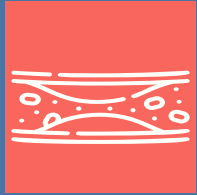
To diagnose angina, a healthcare professional examines the patient and asks questions about symptoms..

## **Tests used to diagnose and confirm angina include:**

**Electrocardiogram (ECG or EKG) :-** This quick and painless test measures the electrical activity of the heart. An ECG can show if the heart is beating too fast or too slow.

**Chest X-ray:-** A chest X-ray shows the condition of the heart and lungs. A chest X-ray may be done to determine if other conditions are causing chest pain symptoms and to see if the heart is enlarged.

**Blood tests :-** Certain heart proteins slowly leak into the blood after heart damage from a heart attack. Blood tests can be done to check for these proteins, called cardiac enzymes.

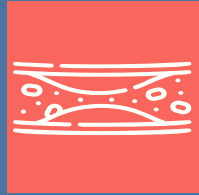




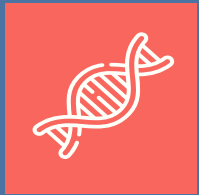
# Diagnosis of Angina



**Stress test** :- Sometimes angina is easier to diagnose when the heart is working harder. A stress test typically involves walking on a treadmill or riding a stationary bike while the heart is checked. Other tests may be done at the same time as a stress test.



**Echocardiogram** :- This test uses sound waves to create images of the heart in motion. These images can show how blood flows through the heart. An echocardiogram may be done during a stress test.



**Nuclear stress test** :- A nuclear stress test helps measure blood flow to the heart muscle at rest and during stress.

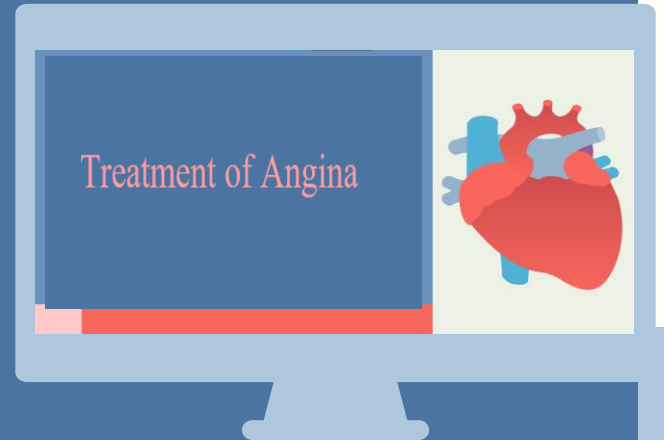
**Cardiac computed tomography (CT) or magnetic resonance imaging (MRI)** :- These tests create images of the heart and chest.



**Coronary angiogram** :- This test uses X-ray imaging to check the inside of the heart's blood vessels. It's part of a general group of procedures known as cardiac catheterization.



# Treatment of Angina





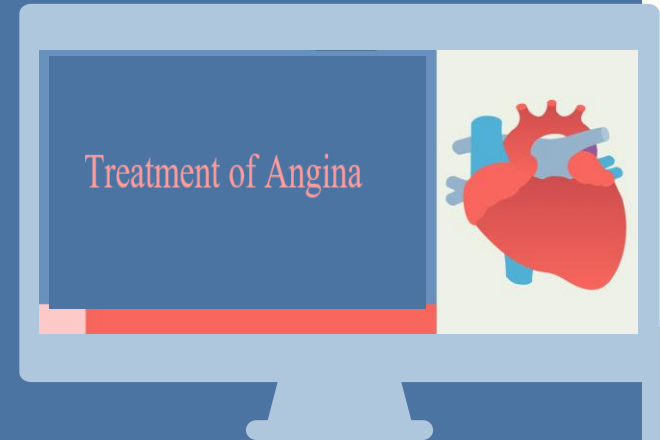
# Treatment of Angina

Options for angina treatment include:

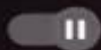
- Lifestyle changes such as eating a healthy diet and exercising.
- Medicines.
- Angioplasty and stenting.
- Open-heart surgery called Coronary Artery Bypass Grafting (CABG).

The goals of angina treatment are to:

- Reduce the number of angina episodes.
- Make symptoms less severe.
- Lower the risk of a heart attack and death.



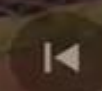
# فيديو توضيحي Open-heart surgery called Coronary Artery Bypass Grafting (CABG)



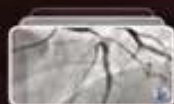
الفيديو التالي  
الحياة بعد عملية قلب مفتوح  
Dr Yasser Sadek



Stent



0:58 / 0:58

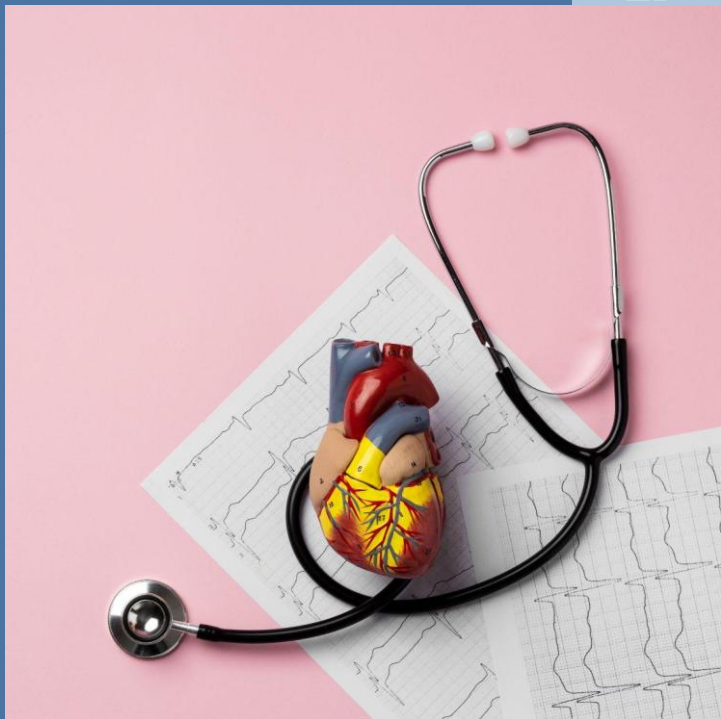


المزيد من الفيديوهات

يمكنك النقر هنا أو التمرير بسرعة للأعلى لعرض جميع الفيديوهات.



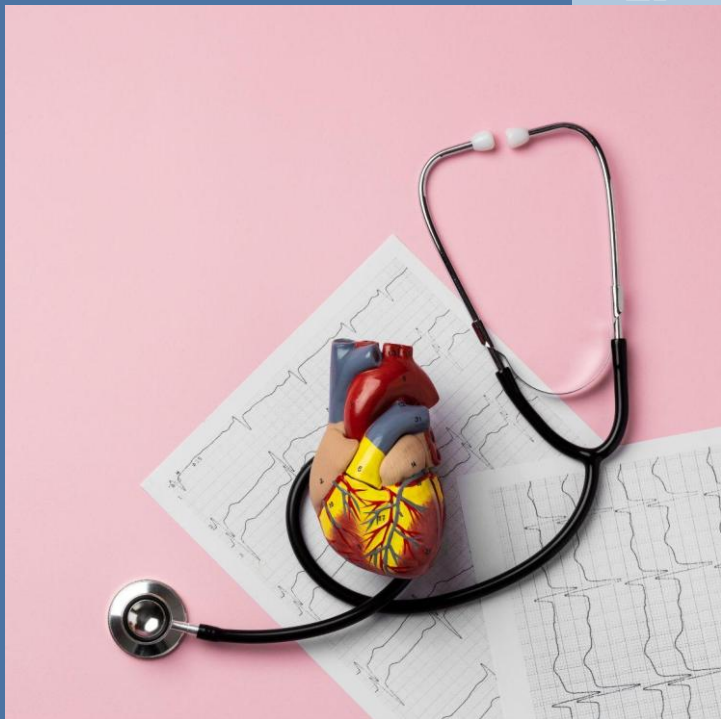
# Prevention



# Prevention

Angina can be prevented by following the same lifestyle changes that are used to treat angina:

- 1- Avoid or limit alcohol.
- 2- Don't smoke.
- 3- Eat a healthy diet.
- 4- Exercise regularly.
- 5- Maintain a healthy weight.
- 6- Manage other health conditions related to heart disease.
- 7- Reduce stress.
- 8- Get 7 to 9 hours of sleep a day.





*Any Questions*





# *Thanks for attention*



نهاية المحاضرة الخامسة الجزء الاول

# المحاضرة الخامسة الجزء الثاني

## Myocardial Infarction (MI)

م.د. آمال فاضل غانم



# مسار المحاضرة

| الوقت    | العنوان الفرعي                                                                                                                     |
|----------|------------------------------------------------------------------------------------------------------------------------------------|
| 10 دقيقة | تمهيد المحاضرة                                                                                                                     |
| 30 دقيقة | Part 1 : Myocardial Infarction (MI)                                                                                                |
| 5 دقيقة  | نشاط جماعي :- النقاش مع الطلبة حول مرض احتشاء القلب وكيفية تطوره واسبابه وطرق تشخيصه.                                              |
| 30 دقيقة | Part 2 : Types of Heart attack (MI) depending on causes                                                                            |
| 15 دقيقة | توضيح كيفية تصنيف مرض احتشاء القلب اعتماداً على الاسباب المؤدية الية وكيفية العلاج واتباع اسلوب حياة صحية للوقاية من هذه الامراض . |
| 5 دقيقة  | Rest                                                                                                                               |
| 15 دقيقة | Quiz                                                                                                                               |
| 10 دقيقة | حضور الطلبة وخاتمة المحاضرة                                                                                                        |

## الهدف من المحاضرة

تعريف مرض احتشاء القلب وفهم  
الطلاب لهذه الحالة الخطيرة من امراض  
القلب ، كيفية تشخيصها والوقاية منها.



# امتحان يومي بالمحاضرة السابقة

الامتحان اليومي يكون بثلاث نماذج مختلفة  
وللدراستين الصباحية والمسائية ، حيث تكون  
الاسئلة شاملة لكل المادة تقريباً والاختيار يكون  
بشكل عشوائي.



# نماذج الامتحان اليومي



Quiz 5:-

(A)

30/11/2025

Q1: There are several types of angina including :-

- 1-
- 2-
- 3-
- 4-

Q2: There are common triggers for angina pain (3 only)

- 1-
- 2-
- 3-

Q3: Angina can prevent by following : (3only)

- 1-
- 2-
- 3-

Quiz 5 :-

(B)

30/11/2025

Q1:- Stable Angina is :-

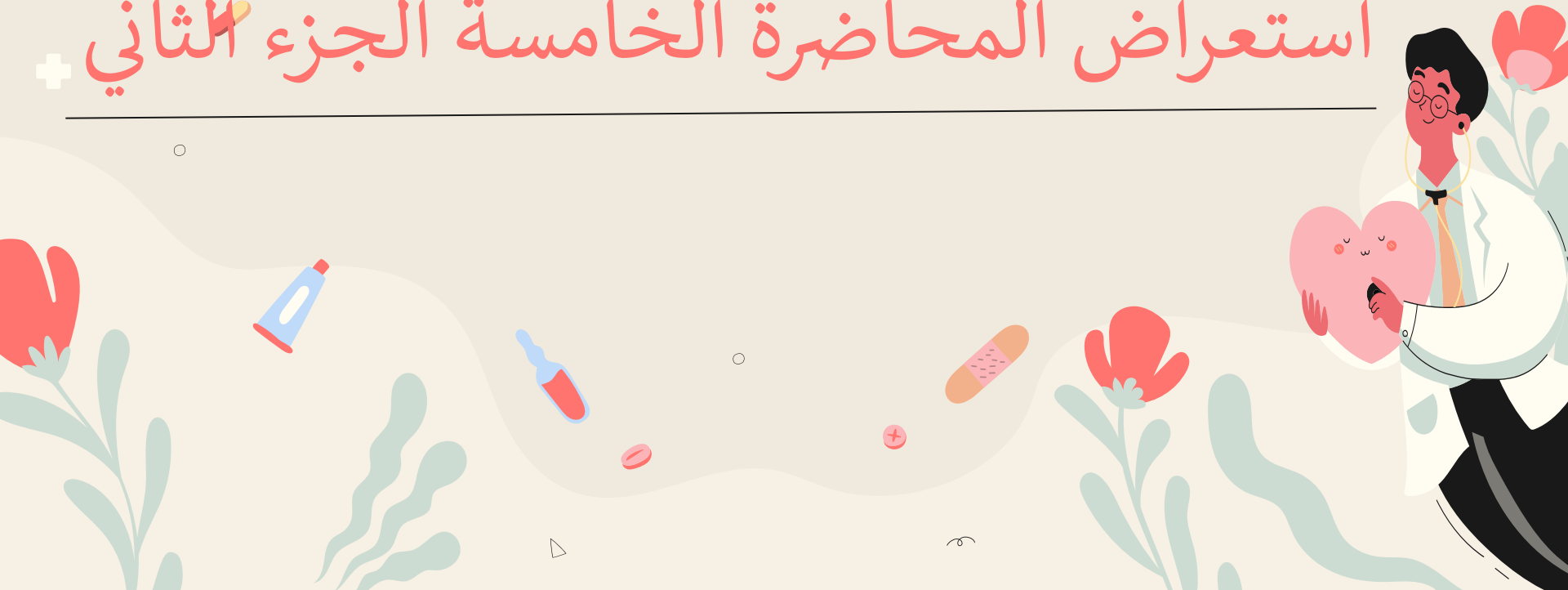
Q2: There are common triggers for angina pain (3 only)

- 1-
- 2-
- 3-

Q3:- Angina can prevent by following : (3only)

- 1-
- 2-
- 3-

# استعراض المحاضرة الخامسة الجزء الثاني





وزارة التعليم العالي والبحث العلمي

الجامعة التقنية الجنوبية

المعهد التقني الطبي – البصرة

قسم تقنيات التخدير

[Anesthes.bti@stu.edu.iq](mailto:Anesthes.bti@stu.edu.iq)

[E.Mail : Presidency@stu.edu.iq](mailto:Presidency@stu.edu.iq)

العراق – البصرة – طريق الزبير العام – مقابل المدينة الرياضية





# Principles of Internal Medical Surgery

Lecturer

**Dr . Amaal Fadhil Ghanim**

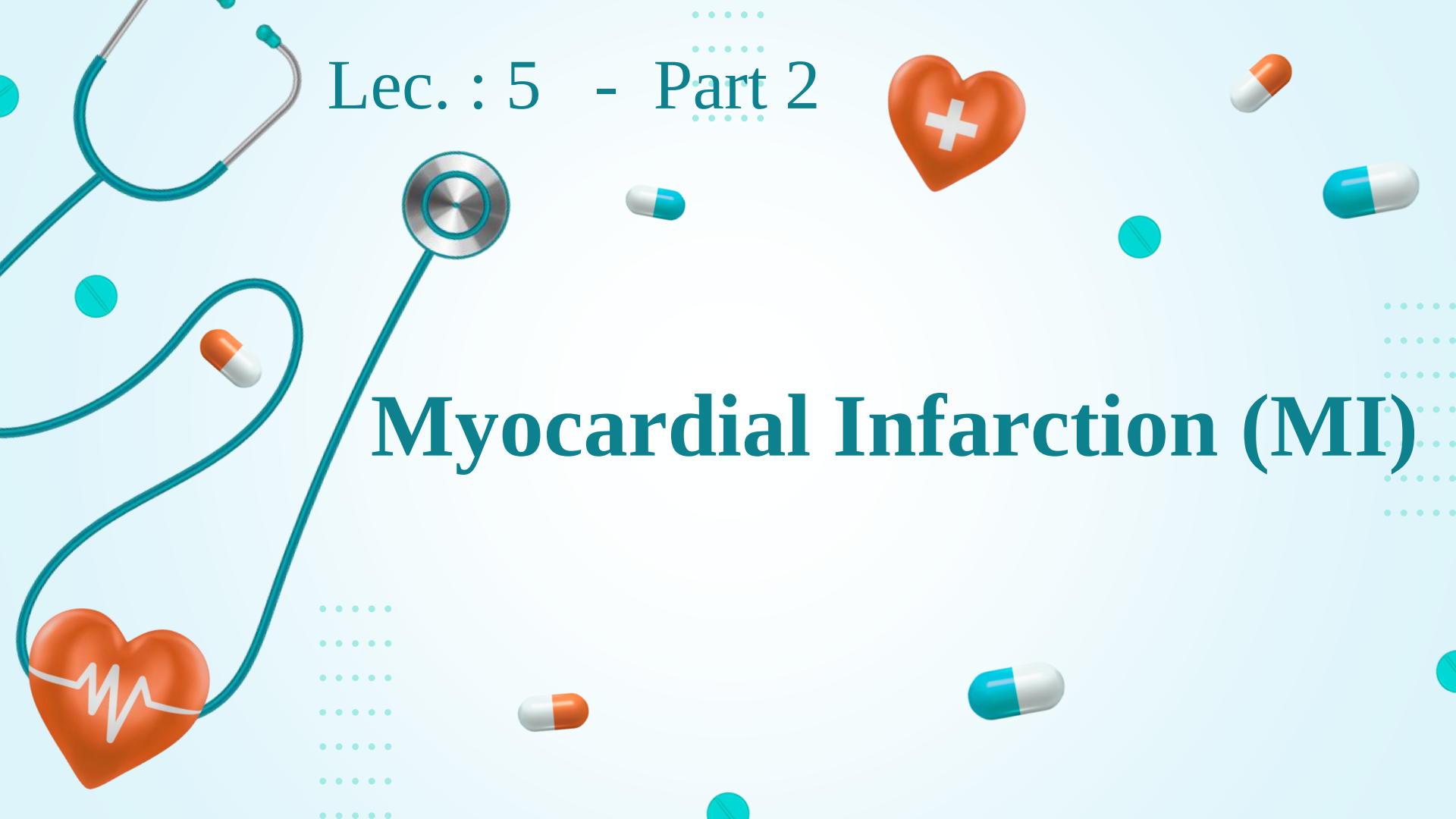
**Email : [Dr.amaal.f.g@stu.edu.iq](mailto:Dr.amaal.f.g@stu.edu.iq)**

**The Second Stage**  
2026 - 2025



Lec. : 5 - Part 2

# Myocardial Infarction (MI)



# Myocardial Infarction (MI)



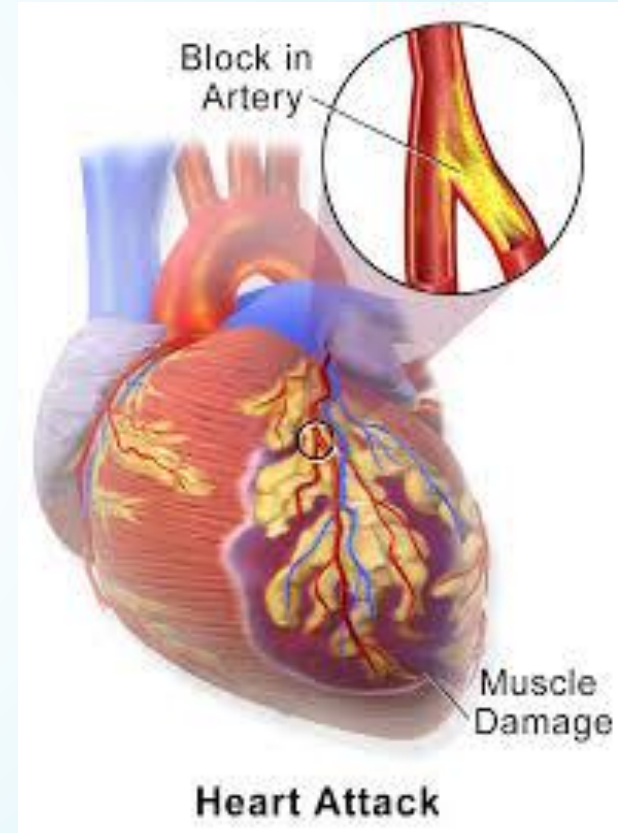
Myocardial Infarction is the medical term for (Heart Attack), which occurs when blood flow to a part of the heart muscle is suddenly blocked, usually by a blood clot.

This lack of oxygen can damage or lead to an ischemic necrosis of the myocardium, and it is a medical emergency that requires immediate attention.



# ● Myocardial Infarction (MI) or Heart Attack

Myocardial Infarction (MI) or Heart Attack occurs when an artery that sends blood and oxygen to the heart is blocked. Fatty, cholesterol-containing deposits build up over time, forming plaques in the heart's arteries. If a plaque ruptures, a blood clot can form. The clot can block arteries, causing a Heart Attack.



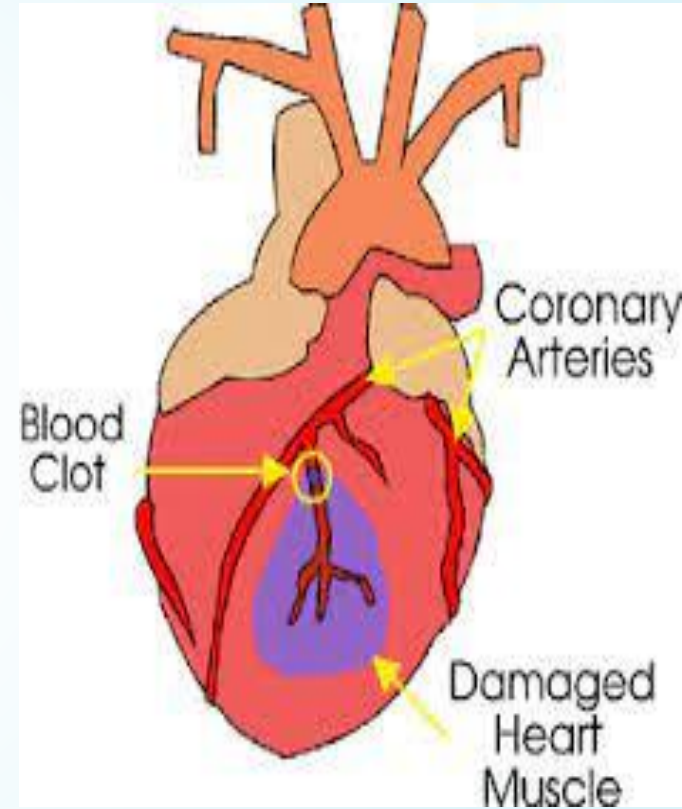


# Causes

Coronary artery disease causes most heart attacks. In coronary artery disease, one or more of the heart (coronary) arteries are blocked. This is usually due to cholesterol-containing deposits called plaques. Plaques can narrow the arteries, reducing blood flow to the heart.

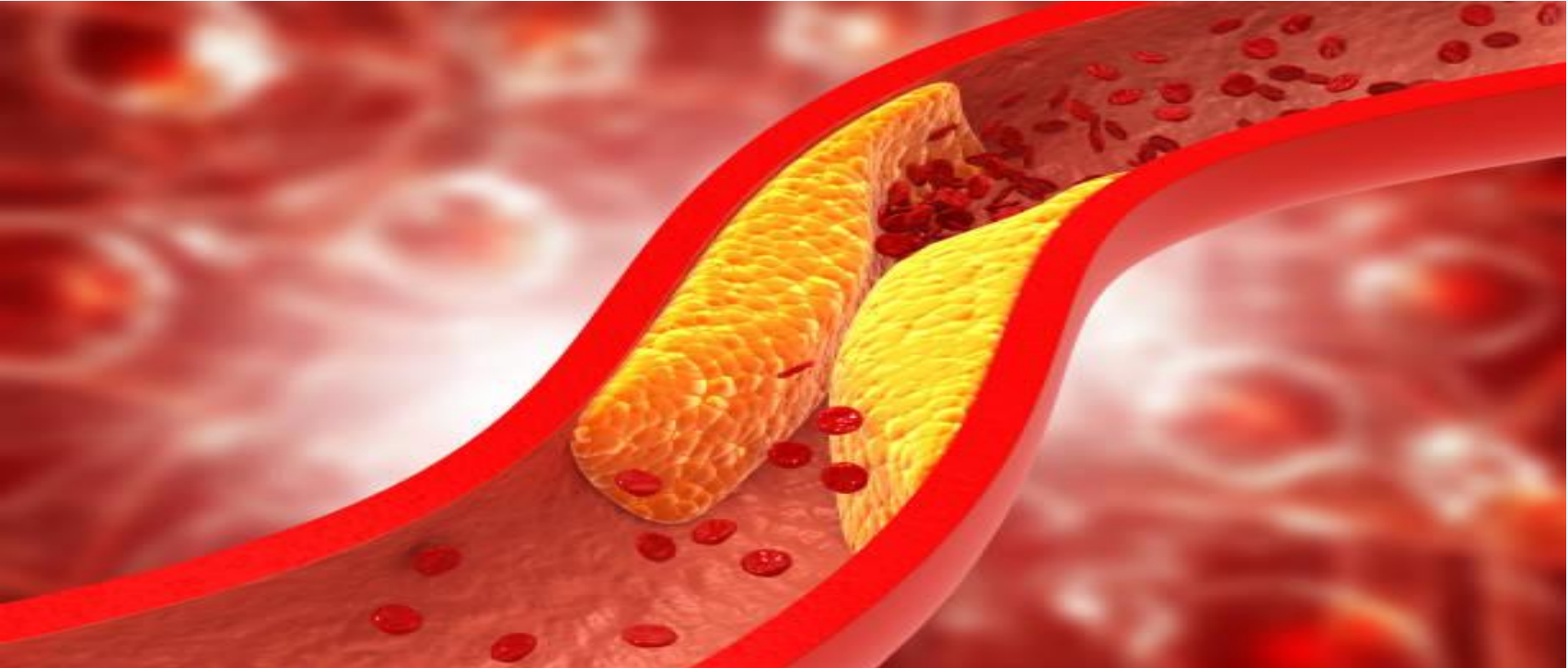
If a plaque breaks open, it can cause a blood clot in the heart.

A heart attack may be caused by a complete or partial blockage of a heart (coronary) artery. One way to classify heart attacks is whether an electrocardiogram (ECG or EKG) shows some specific changes .





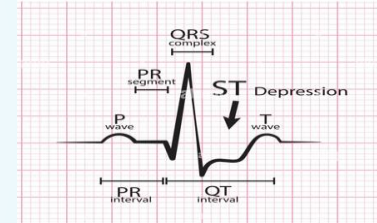
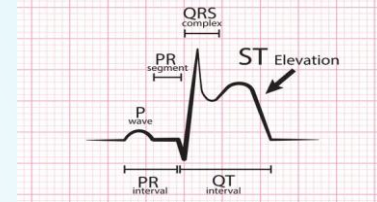
Not all heart attacks are caused by blocked arteries.



# Types of Heart attack (MI) depending on causes



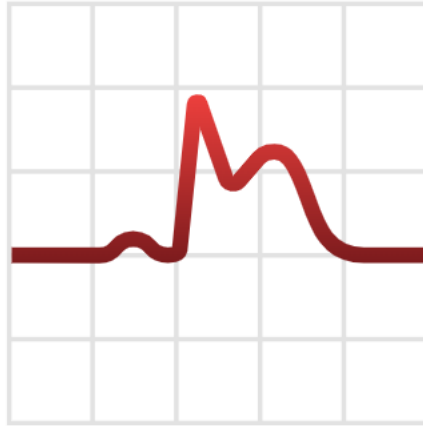
1. **An acute complete blockage :-** this type occur when a medium or large heart artery has complete blockage , usually means had an ST elevation myocardial infarction (STEMI).
2. **A partial blockage :-** often means had a non-ST elevation myocardial infarction (NSTEMI).
3. **Coronary artery spasm:-** This is a severe squeezing of a blood vessel that's not blocked. Other names for coronary artery spasms are Prinzmetal's angina, vasospastic angina .
4. **Certain infections:-** COVID-19 and other viral infections may cause damage to the heart muscle.
5. **Spontaneous coronary artery dissection (SCAD):-** This life-threatening condition is caused by a tear inside a heart artery.



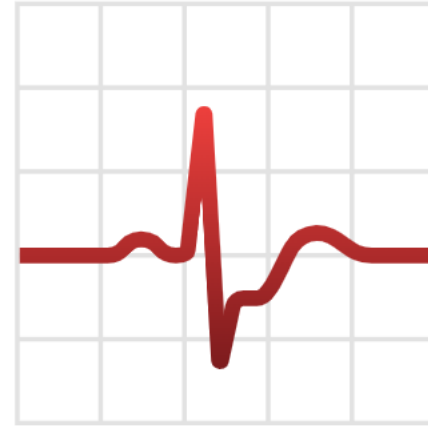
# Types of Heart attack (MI) depending on causes



**NORMAL ELECTROCARDIOGRAM**



**STEMI ELECTROCARDIOGRAM**



**NSTEMI ELECTROCARDIOGRAM**





# Symptoms of Myocardial Infarction or ( Heart Attack)

# Symptoms of

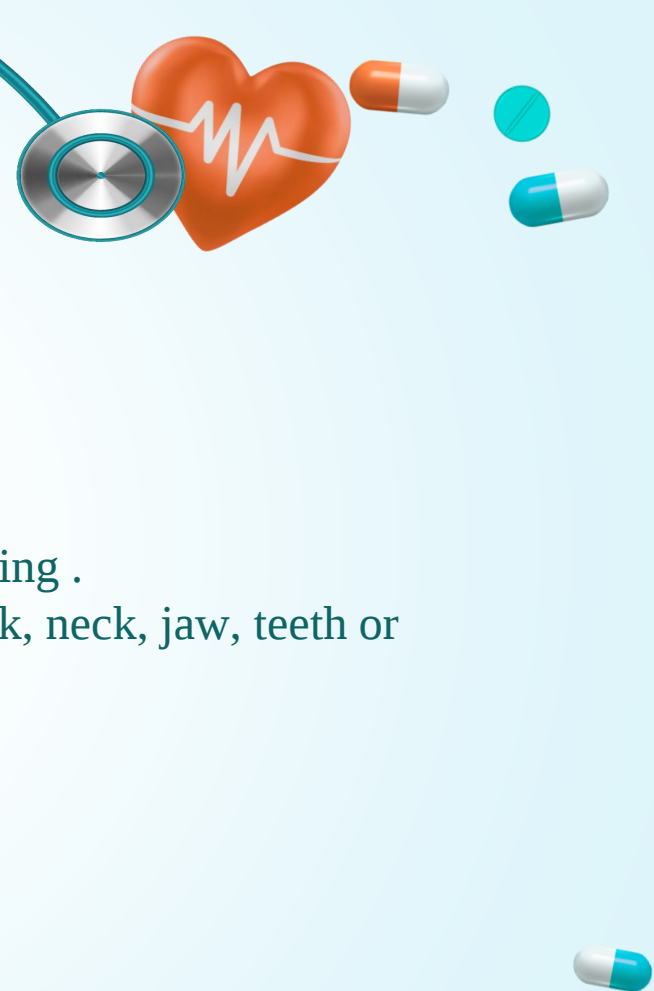
## Myocardial Infarction or ( Heart Attack)

Symptoms of Myocardial Infarction or ( Heart Attack) are vary!

- Some people have mild symptoms.
- Others have severe symptoms.
- Some people have no symptoms.

Common Heart Attack (MI) symptoms include:

1. Chest pain that may feel like pressure, tightness, squeezing .
2. Pain or discomfort that spreads to the shoulder, arm, back, neck, jaw, teeth or sometimes the upper belly.
3. Cold sweat.
4. Fatigue.
5. Heartburn or indigestion.
6. Lightheadedness or sudden dizziness.
7. Nausea.
8. Shortness of breath.





## Symptoms of

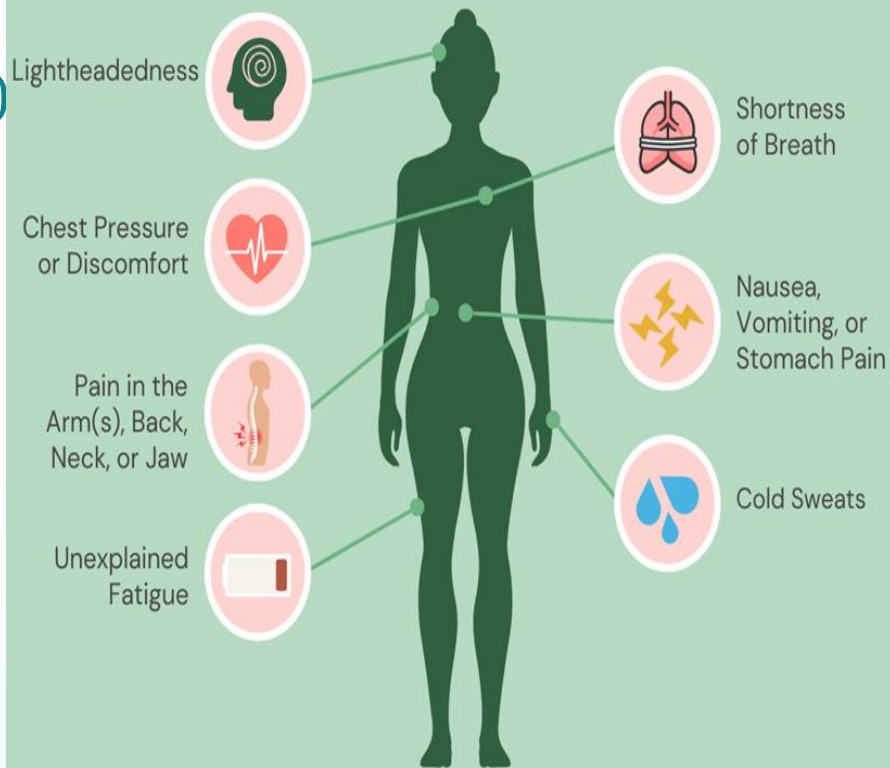
## Myocardial Infarction or ( Heart Attack)

Women may have atypical symptoms such as brief or sharp pain felt in the neck, arm or back.



## The Signs of a Heart Attack in Women

Symptoms are often subtle and may be overlooked:



Diet-related risks account for 10 million (52%) CVD deaths worldwide.



Unmodifiable  
risk factors



Age

Gender

Genetic factors

Race & ethnicity



Cigarette smoking

Overtaking  
unhealthy  
foods

Alcohol intake

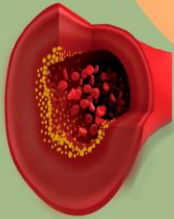
Hypertension

Hyperlipidemia

Obesity



Modifiable risk  
factors



# Heart Attack (MI) Risk Factors



# Heart Attack (MI) Risk Factors

risk factors include:

- **Age** :- Men age 45 and older and women age 55 and older are more likely to have a heart attack than are younger men and women.
- **Tobacco use** :- This includes smoking and long-term exposure to secondhand smoke.
- **High blood pressure** :- Over time, high blood pressure can damage arteries that lead to the heart.
- **High cholesterol or triglycerides** :-A high level of low-density lipoprotein (LDL) cholesterol (the "bad" cholesterol) is most likely to narrow arteries.
-

## Heart Attack (MI) Risk Factors

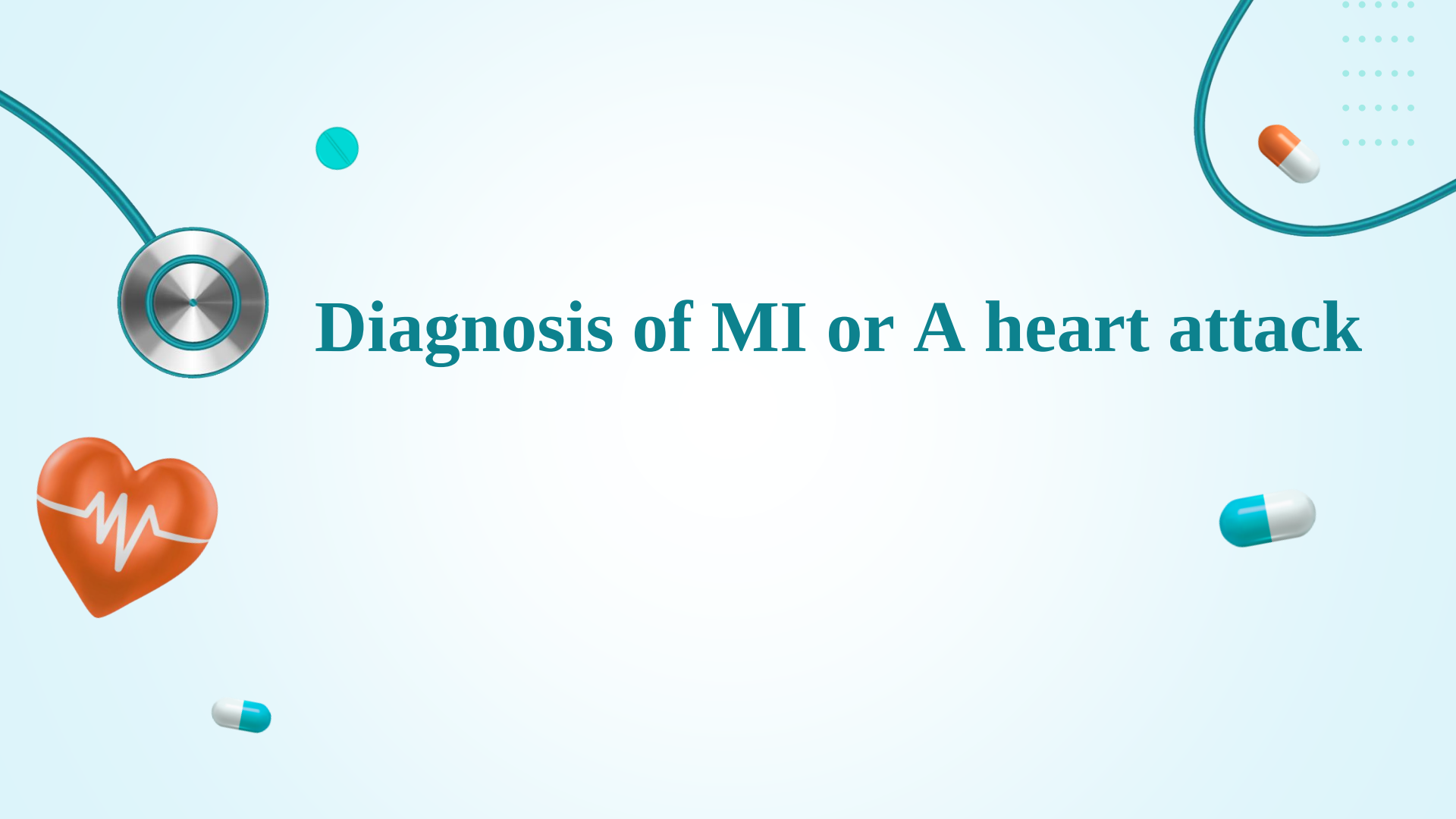


- **Obesity** :- Obesity is linked with high blood pressure, diabetes, high levels of triglycerides and bad cholesterol, and low levels of good cholesterol.
- **Diabetes** :- High blood sugar increases the risk of a heart attack.
- **Family history of heart attacks** :- If a brother, sister, parent or grandparent had an early heart attack (by age 55 for males and by age 65 for females), this might be increased risk.
- **Not enough exercise** :- A lack of physical activity (sedentary lifestyle) is linked to a higher risk of heart attacks. Regular exercise improves heart health.
- **Unhealthy diet** :- A diet high in sugars, animal fats, processed foods, trans fats and salt increases the risk of heart attacks.



## Heart Attack (MI) Risk Factors

- **Stress** :- Emotional stress, such as extreme anger, may increase the risk of a heart attack.
- **Illegal drug use** :- Cocaine and amphetamines are stimulants. They can trigger a coronary artery spasm that can cause a heart attack.
- **A history of preeclampsia** :- This condition causes high blood pressure during pregnancy.
- **An autoimmune condition** :- Having a condition such as rheumatoid arthritis or lupus can increase the risk of a heart attack.



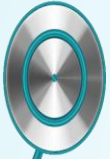
# Diagnosis of MI or A heart attack

# Diagnosis of MI or A heart attack

A heart attack is often diagnosed in an emergency setting. If patient had or are having a heart attack, care providers will take immediate steps to treat the condition. If patient able to answer questions, may be asked about symptoms and medical history.

Diagnosis of a heart attack includes checking blood pressure, pulse and temperature.

Tests are done to see how the heart is beating and to check overall heart health.

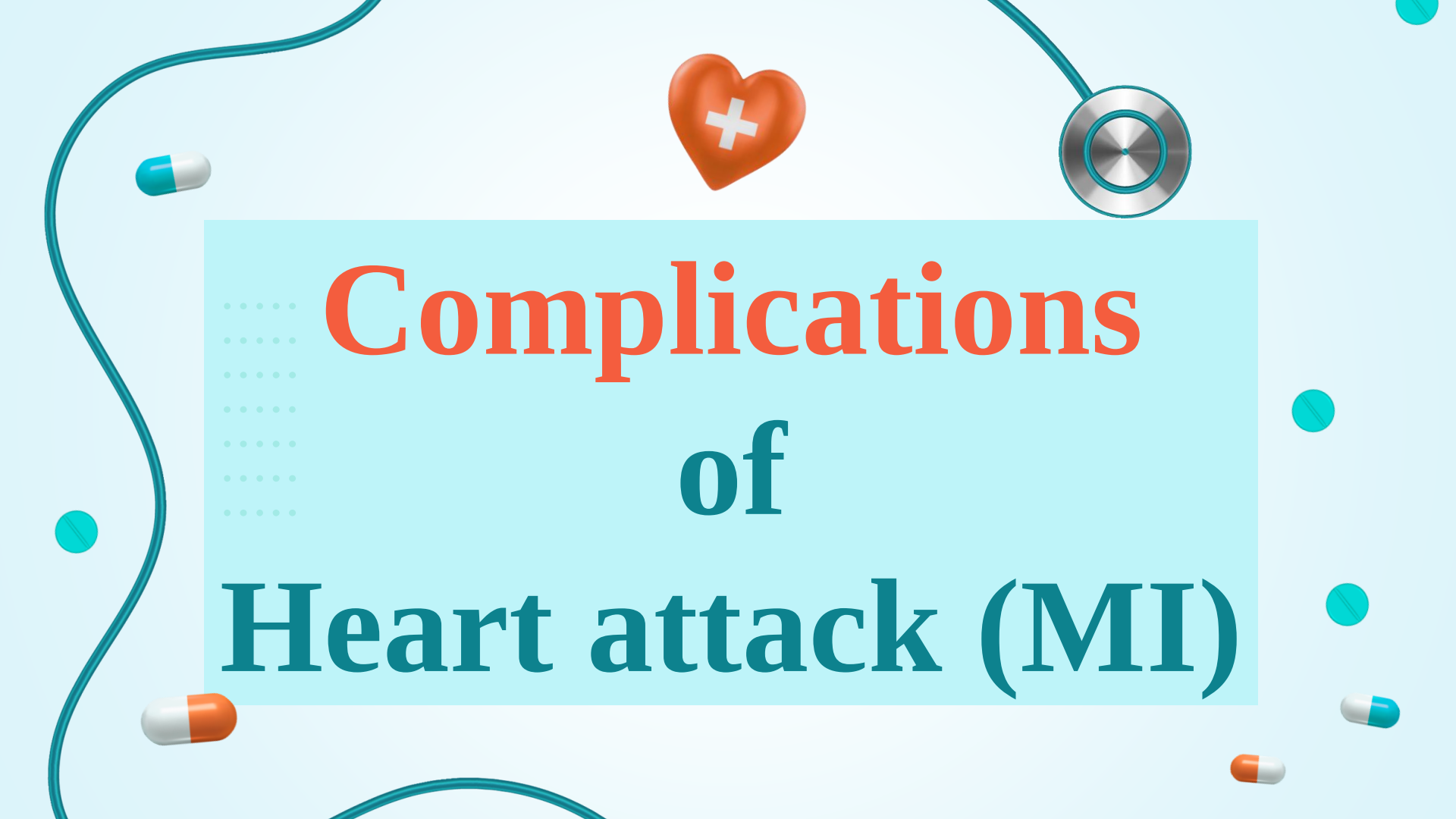


# Diagnosis of MI or A heart attack

Tests to diagnose a heart attack include:

- ❖ Electrocardiogram (ECG or EKG). Blood tests.
- ❖ Chest X-ray.
- ❖ Echocardiogram. Coronary catheterization (angiogram).
- ❖ Cardiac Computerized Tomography (CT) or Magnetic Resonance Imaging (MRI).



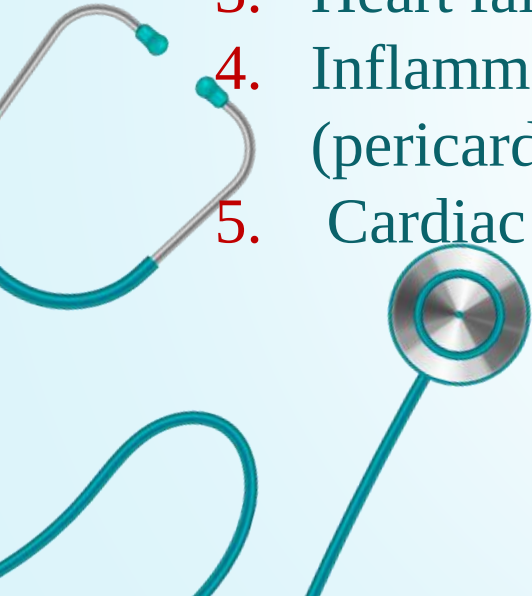


# Complications of Heart attack (MI)

# Complications of Heart attack (MI)

Heart attack complications are often due to heart muscle damage. Potential complications of a heart attack include:

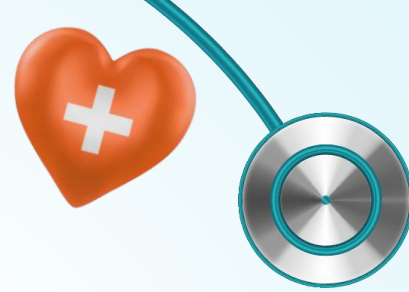
1. Irregular or atypical heart rhythms (arrhythmias).
2. Cardiogenic shock.
3. Heart failure.
4. Inflammation of the saclike tissue surrounding the heart (pericarditis).
5. Cardiac arrest.





# Treatment of MI or A heart attack





# Treatment of MI or A heart attack

Each minute after a heart attack, more heart tissue is damaged or dies. Urgent treatment is needed to fix blood flow and restore oxygen levels.

Oxygen is given immediately.

Specific heart attack treatment depends on whether there's a partial or complete blockage of blood flow.



# Treatment of MI or A heart attack



Medications to treat a heart attack might include:

1. **Aspirin** :- Aspirin reduces blood clotting. It helps keep blood moving through a narrowed artery.
2. **Clot busters (thrombolytics or fibrinolytics)** :- These drugs help break up any blood clots that are blocking blood flow to the heart.
3. **Other blood-thinning medicines** :- A medicine called heparin may be given by an intravenous (IV) injection. Heparin makes the blood less sticky and less likely to form clots.
4. **Nitroglycerin**. This medication widens the blood vessels. It helps improve blood flow to the heart.



# Treatment of MI or A heart attack



Medications to treat a heart attack might include:

5. **Morphine.** This medicine is given to relieve chest pain that doesn't go away with nitroglycerin.
6. **Beta blockers.** These medications slow the heartbeat and decrease blood pressure.
7. **Blood pressure medicines**
8. **Statins.** These drugs help lower unhealthy cholesterol levels.



# Treatment of MI or A heart attack



## Surgical and other procedures



If patient had a heart attack, a surgery or procedure may be done to open a blocked artery. Surgeries and procedures to treat a heart attack include:

- **Coronary angioplasty and stenting** :- This procedure also be called percutaneous coronary intervention (PCI).
- **Coronary artery bypass grafting (CABG)** :-This is open-heart surgery. A surgeon takes a healthy blood vessel from another part of the body to create a new path for blood in the heart.





# Prevention Myocardial Infarction or Heart Attack

## Prevention

### Myocardial Infarction or Heart Attack

It's never too late to take steps to prevent a heart attack, Here are ways to prevent a heart attack.

- **Follow a healthy lifestyle** :- Don't smoke, and maintain a healthy weight with a heart-healthy diet. Get regular exercise and manage stress.
- **Manage other health conditions**:- Certain conditions, such as high blood pressure and diabetes, can increase the risk of heart attacks.
- **Take medications as directed** :- drugs may protect and improve heart health.

**Do you have any questions?**





نهاية المحاضرة الخامسة الجزء الثاني

# المحاضرة السادسة

## An arrhythmia

م.د. آمال فاضل غانم



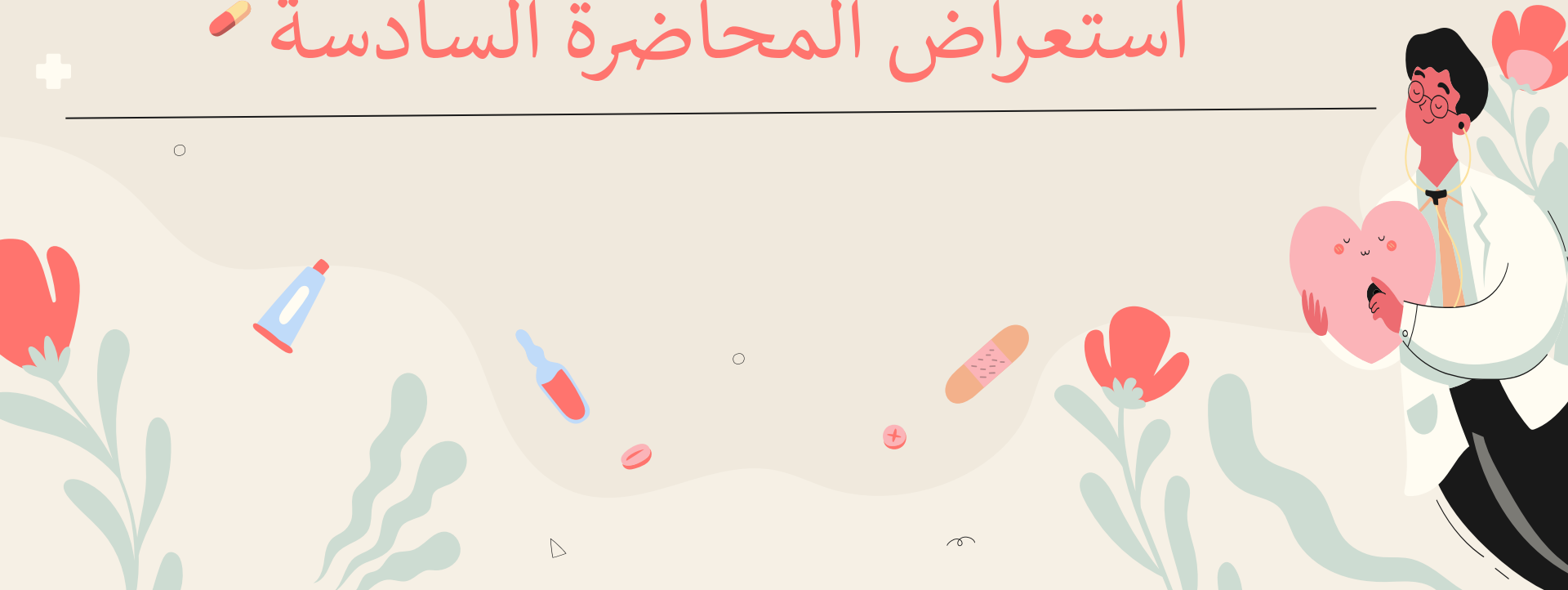
# مسار المحاضرة

| العنوان الفرعي                                                                                                                                                                                                                                          | الوقت    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| تمهيد المحاضرة                                                                                                                                                                                                                                          | 10 دقيقة |
| <b>Part 1 :An arrhythmia</b>                                                                                                                                                                                                                            |          |
| توضيح فسلجة القلب بغرفه الاربعة وصماماته والاربطة التي تتحكم بفتح واغلاق هذه الصمامات وارتباطه بالشرابين الرئيسة بالجسم وفسلجة عضلة القلب ونشوء كهربائية نبضة القلب وكيفية انتقالها في معظم ارجاء عضلة القلب والمناطق المسؤولة عن ذلك ضمن النسيج القلبي | 35 دقيقة |
| <b>Part 2 : Arrhythmias can be caused by:</b>                                                                                                                                                                                                           |          |
| مناقشة كيفية اختلاف نبضة القلب وما تأثيرها على عمل القلب والاعضاء الحيوية الاخرى                                                                                                                                                                        | 45 دقيقة |
| استراحة                                                                                                                                                                                                                                                 | 5 دقيقة  |
| مراجعة بسيطة للموضوع وطرح الاسئلة على الطلبة                                                                                                                                                                                                            | 15 دقيقة |
| حضور الطلبة وخاتمة المحاضرة                                                                                                                                                                                                                             | 10 دقيقة |

## الهدف من المحاضرة

تعريف الطلبة بآلية نبضة القلب والاجزاء  
المؤثرة عليها في عضلة القلب وكيفية حدوث  
اختلاف النسق القلبي واسبابه ، كيفية  
تشخيصه وعلاجه ، وابرز المضاعفات  
المحتملة للحالة .

# استعراض المحاضرة السادسة





# وزارة التعليم العالي والبحث العلمي

## الجامعة التقنية الجنوبية

### المعهد التقني الطبي – البصرة

### قسم تقنيات التخدير

[Anesthes.bti@stu.edu.iq](mailto:Anesthes.bti@stu.edu.iq)

[E.Mail : Presidency@stu.edu.iq](mailto:Presidency@stu.edu.iq)

العراق – البصرة – طريق الزبير العام – مقابل المدينة الرياضية



# Principles of Internal Medical Surgery

**Lecturer**

**Dr . Amaal Fadhil Ghanim**

**Email :** [Dr.amaal.f.g@stu.edu.iq](mailto:Dr.amaal.f.g@stu.edu.iq)



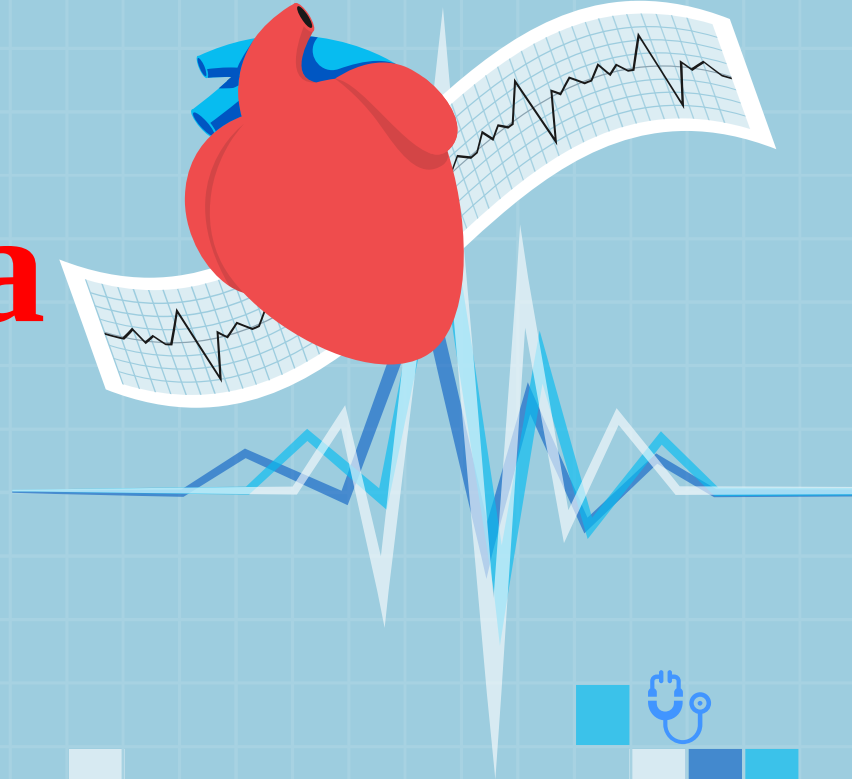
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# An arrhythmia



# An arrhythmia

An arrhythmia (also called dysrhythmia) is an abnormal heartbeat.





# An arrhythmia

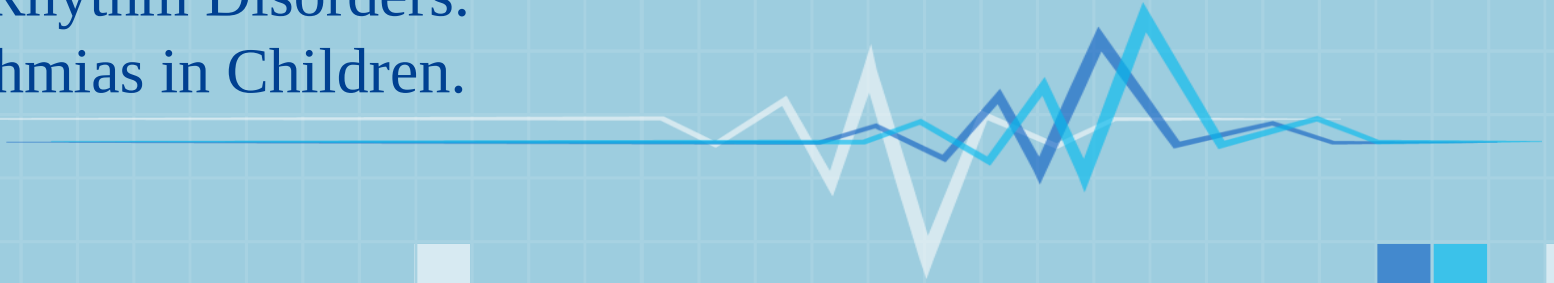
The term “arrhythmia” refers to any problem in the rate or rhythm of a person’s heartbeat. During an arrhythmia, the electrical impulses may be too fast, too slow or erratic, causing an irregular heartbeat.

When the heart doesn’t beat properly, it can’t pump blood effectively. When this happens, the lungs, brain and all other organs can’t work properly and may shut down or be damaged.



# Types of Arrhythmias

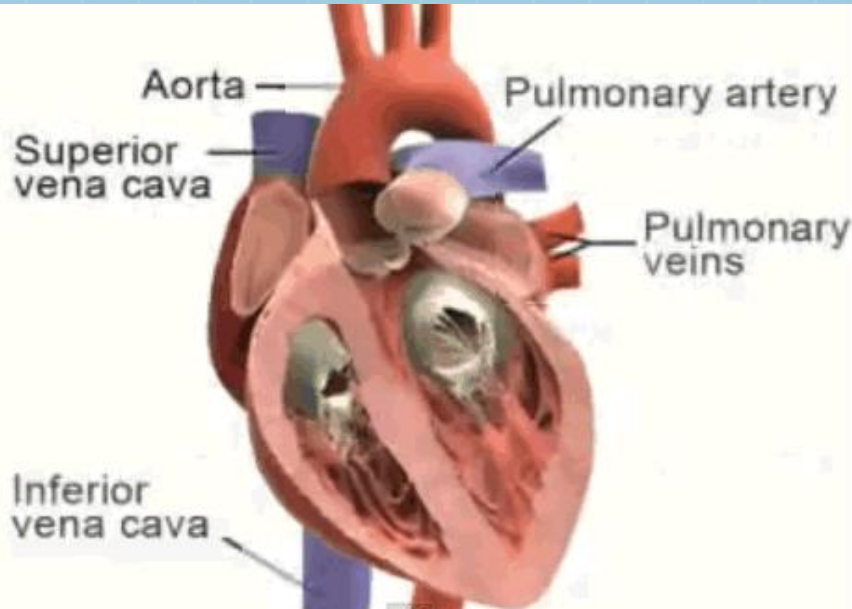
- Atrial Fibrillation.
- Atrial Flutter.
- Bradycardia.
- Conduction Disorders.
- Premature Contraction.
- Tachycardia.
- Ventricular Fibrillation.
- Other Rhythm Disorders.
- Arrhythmias in Children.



# Four chambers, Four valves

The heart has four chambers, two on the right and two on the left:

- Two upper chambers are called atria .
- Two lower chambers are called ventricles.

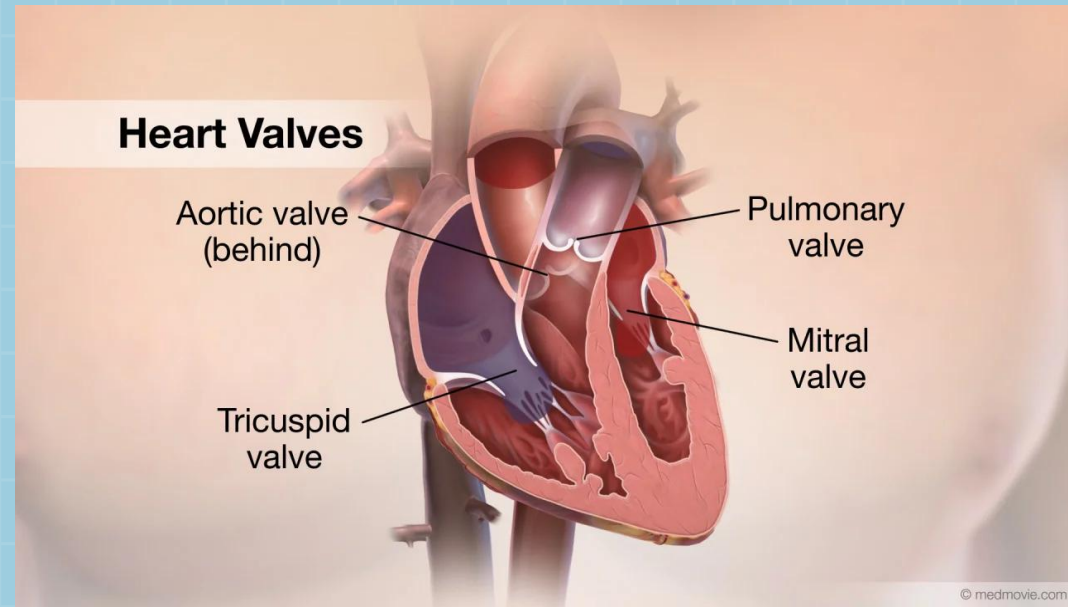


The heart also has four valves that open and close to let blood flow in only one direction when the heart contracts (beats).

# Four chambers, Four valves

The four heart valves are:

- ❑ Tricuspid valve, located between the right atrium and right ventricle.
- ❑ Pulmonary or pulmonic valve, between the right ventricle and the pulmonary artery.
- ❑ Mitral valve, between the left atrium and left ventricle.
- ❑ Aortic valve, between the left ventricle and the aorta.



# Four chambers, Four valves

Each valve has a set of flaps (also called leaflets or cusps). The mitral valve has two flaps; the others have three. Blood flow occurs only when there's a difference in pressure across the valves, which causes them to open. Under normal conditions, the valves allow blood to flow in only one direction.

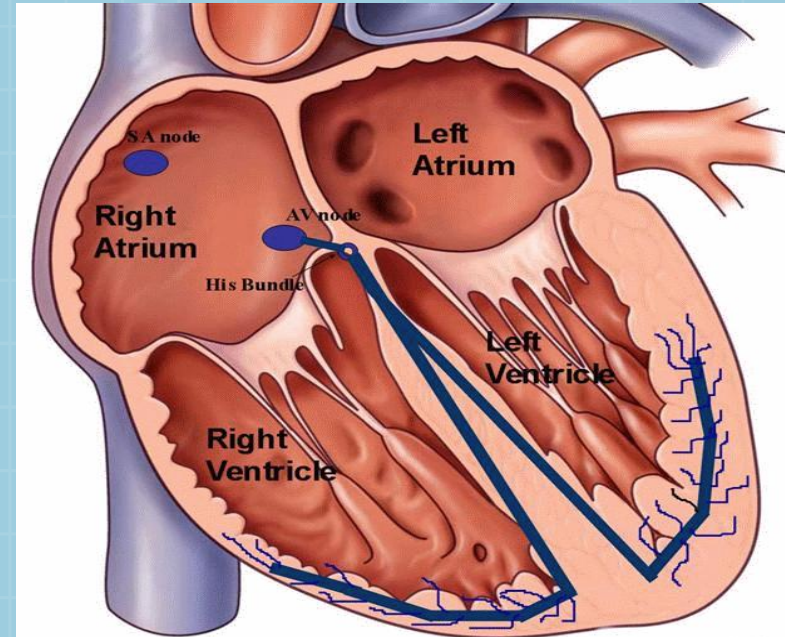
The heart pumps blood to the lungs and to all the body's tissues by a sequence of highly organized contractions of the four chambers. For the heart to function properly, the four chambers must beat in an organized way.



# Electrical System of the Heart

The heartbeat (contraction) begins when an electrical impulse from the sinus node (also called SA node) moves through the heart's muscle tissue. The SA node is sometimes called the heart's “natural pacemaker” because it starts the impulses for the heartbeat.

The normal electrical sequence begins in the right atrium and spreads throughout the atria to the atrioventricular (AV) node. Electrical impulses travel down the bundle of His from the AV node and through the Purkinje fibers, causing the ventricles to contract.



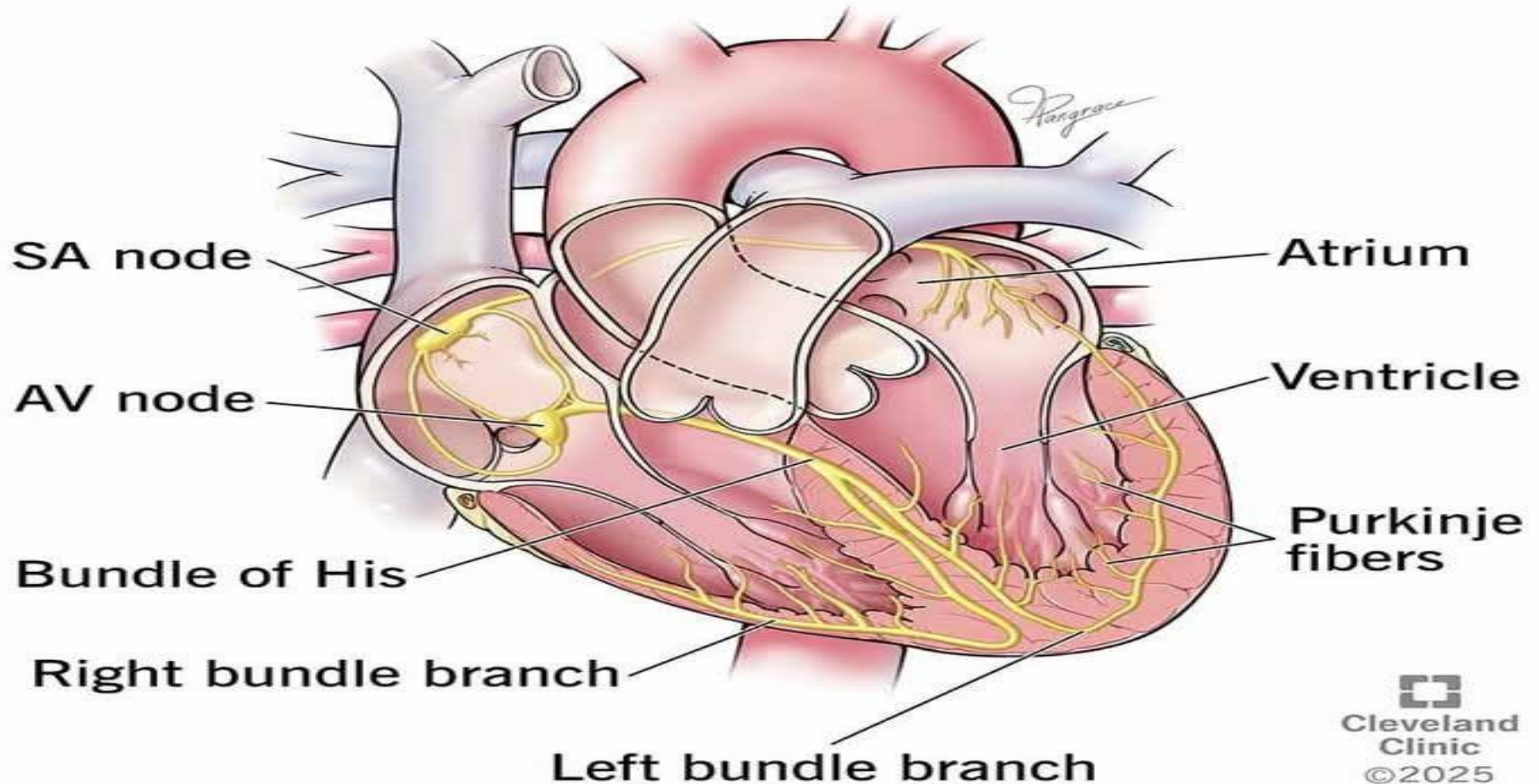
# Electrical System of the Heart

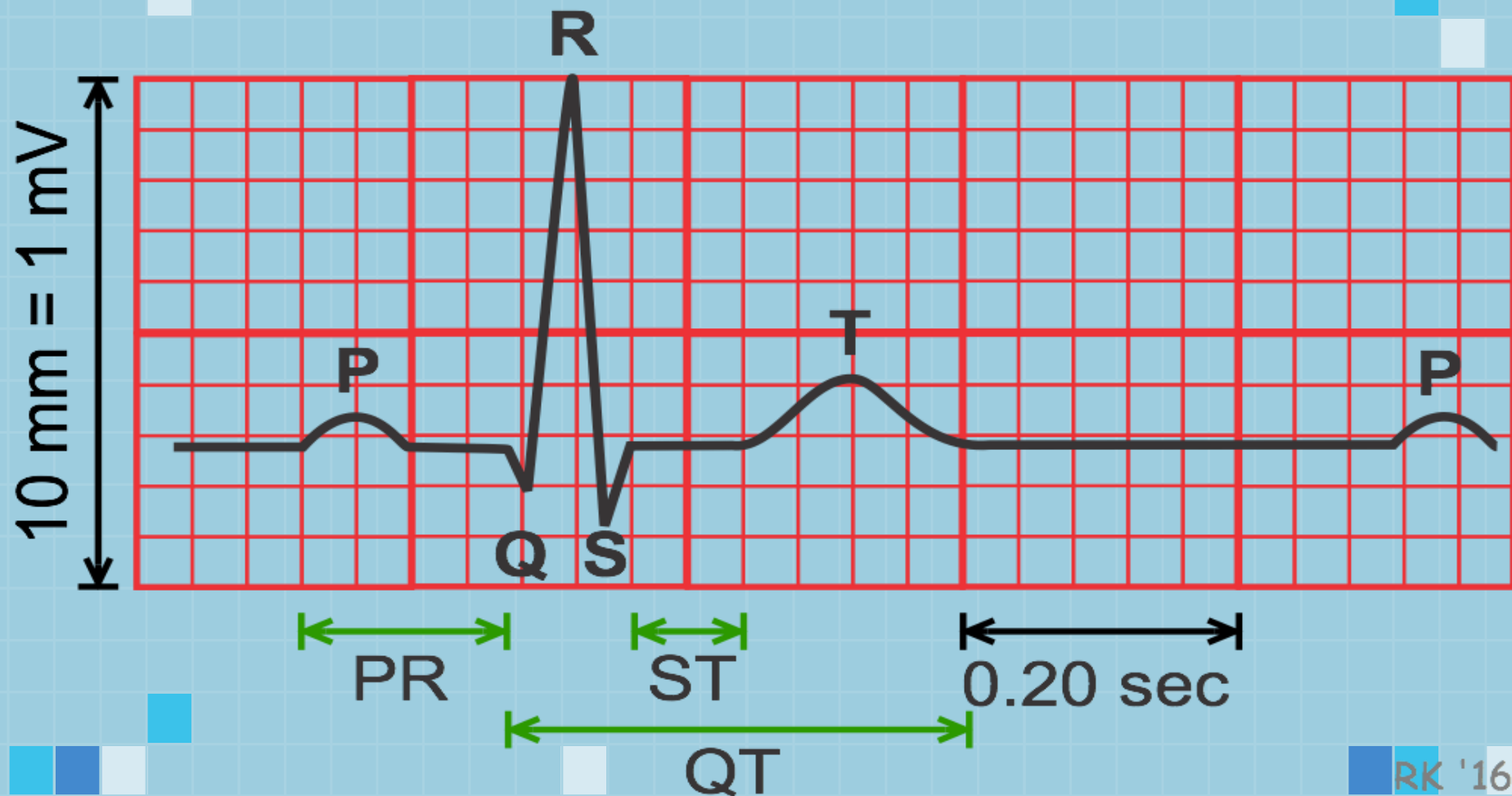
The normal heart beats in a regular manner because electrical impulses cause a sequence of organized contractions. In an adult, a normal heart beats 60 to 100 times a minute.



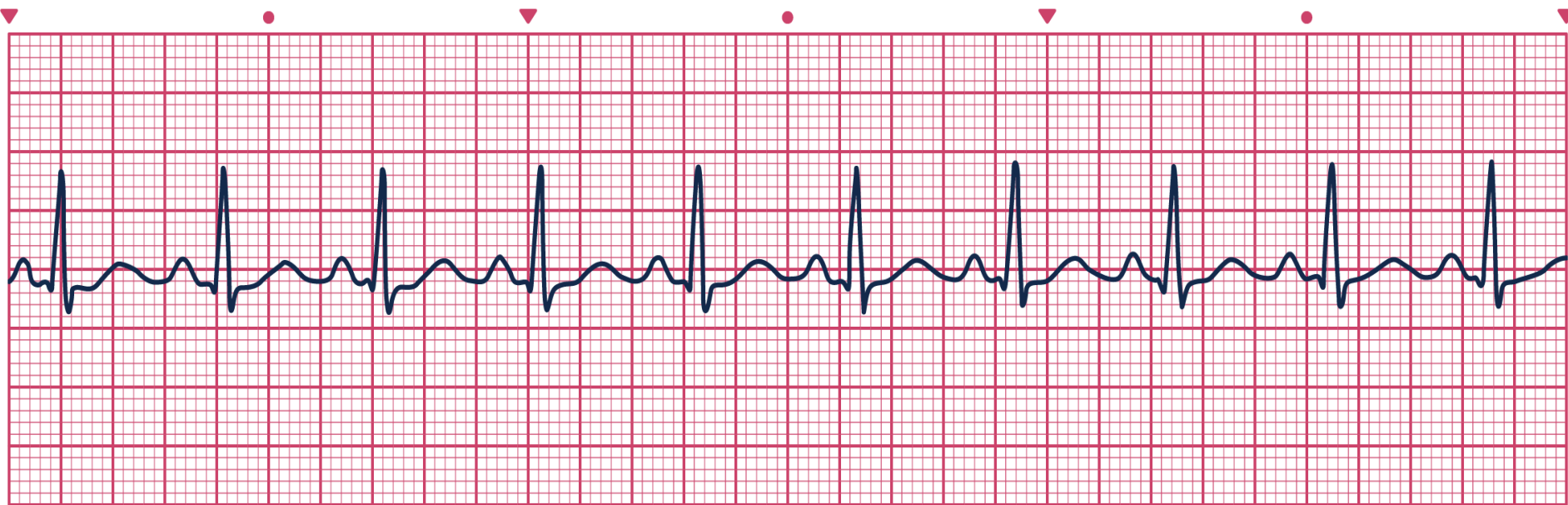
Electrocardiography (ECG or EKG) is a simple, painless test that records the heart's electrical activity and can help detect arrhythmias (abnormal heart rhythms).

# Cardiac conduction system





Normal





### Atrial Fibrillation

*Rhythm:* Irregular

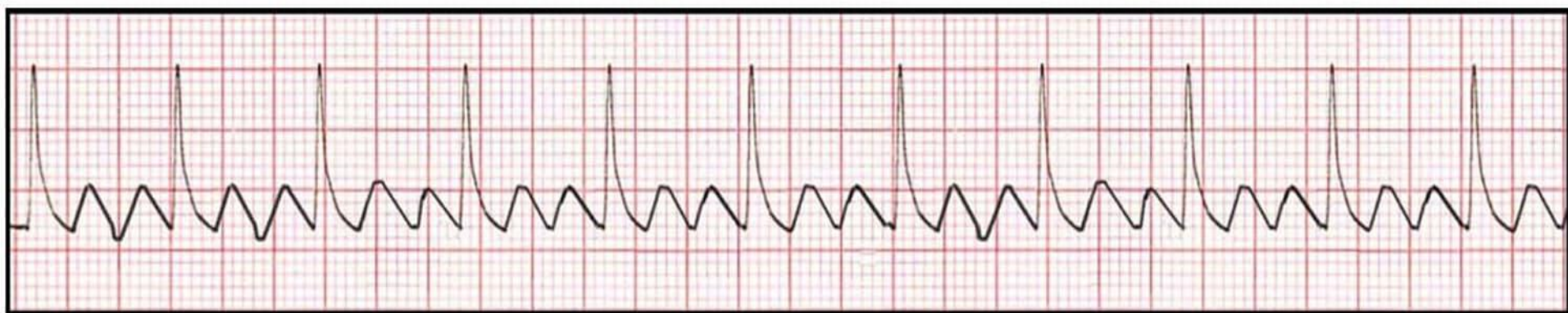
*Rate:* 90 bpm (Atrial rate is very fast and chaotic, and cannot be counted) *P*

*Waves:* Not discernible. Chaotic.

*P-R Interval:* None

*QRS:* 0.08 sec (normal range= 0.04-0.12)

*Clinical Significance:* Treatment is not normally necessary. Rather an expert consultation is required. Patients will often feel weak or dizzy. For an unstable patient, perform synchronized cardioversion with 200 Joules with a monophasic or 120 to 200 joules with a biphasic defibrillator. Pharmacologic therapy should be done only upon expert consultation or medical control direction.



### Atrial Flutter

*Rhythm:* Regular (Can be irregular)

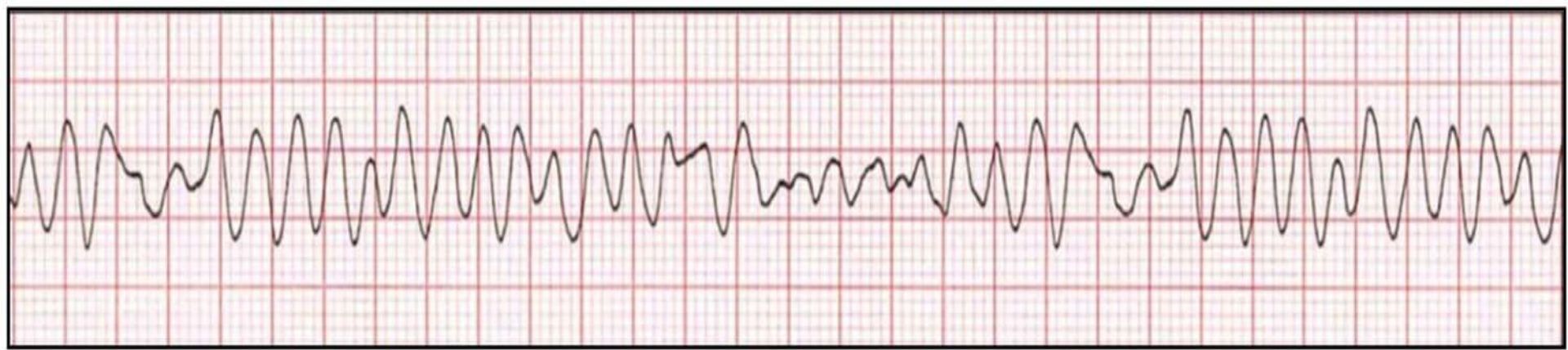
*Rate:* 110 bpm (Atrial rate is 210. Typical "sawtooth" pattern of atrial flutter.)

*P Waves:* Flutter waves, or F waves, are present.

*P-R Interval:* F waves are consistent, 2 for every QRS (2:1 or 3:1 is typical)

*QRS:* 0.12 sec (normal range= 0.04-0.12)

*Clinical Significance:* Treatment is not normally necessary. Rather an expert consultation is required. Patients will often feel weak or dizzy. Treatment is necessary if there is a rapid ventricular rate that creates hemodynamic instability. For an unstable patient, perform synchronized cardioversion with 50 to 100 J with a monophasic or biphasic defibrillator. Pharmacologic therapy should be done only upon expert consultation or medical control direction.



### Ventricular Fibrillation (V-fib)

*Rhythm:* Chaotic

*Rate:* Chaotic

*P Waves:* Absent

*P-R Interval:* Absent

*QRS:* Absent

*Clinical Significance:* Ventricular fibrillation is lethal with no cardiac output. Defibrillate with an initial unsynchronized dose of 360 joules monophasic or 120-200 joules biphasic. 1mg Ephinephrine 1:10,000 is the drug of choice given every 3-5 minutes.

# Premature Ventricular Contraction (PVC)

Lead II



# Arrhythmia



The term “**Arrhythmia**” refers to any change from the normal sequence of electrical impulses.

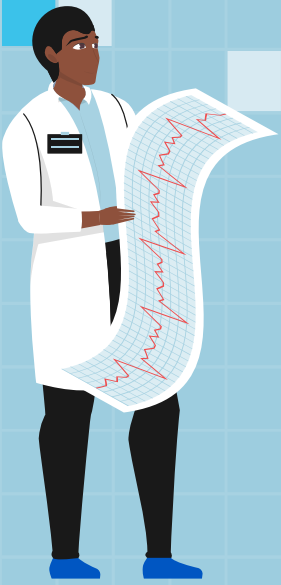
Some arrhythmias are so brief (such as a temporary pause or premature beat) that the overall heart rate or rhythm isn’t greatly affected. But if arrhythmias last longer, they may make the heart rate too slow, too fast or erratic, so the heart pumps less effectively.

# Arrhythmia

- A slow heart rate (less than 60 beats per minute) is called **bradycardia**.
- A fast heart rate (in adults, more than 100 beats per minute) is called **tachycardia**.

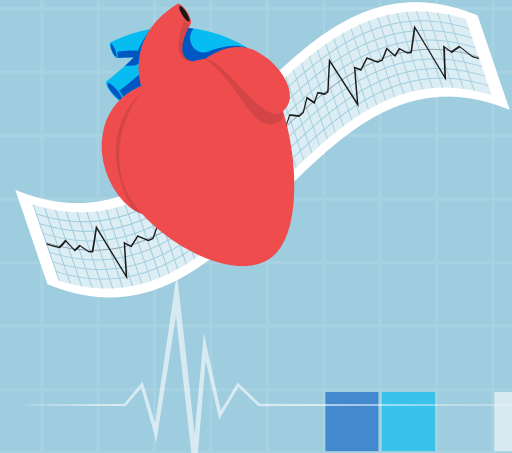


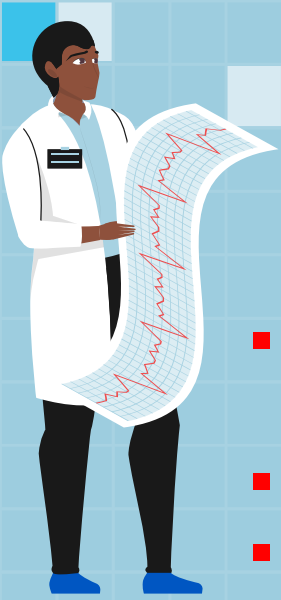
# Causes



Normally, the heart's most rapidly firing cells are in the sinus node, making that area a natural pacemaker. Under some conditions, almost all heart tissue can start an impulse of the type that can generate a heartbeat.

- Cells in the heart's conduction system can fire automatically and start electrical activity. This activity can interrupt the normal order of the heart's pumping activity.
- Secondary pacemakers elsewhere in the heart provide a “backup” rhythm when the sinus node doesn't work properly or when impulses are blocked somewhere in the conduction system.





## Arrhythmias can be caused by:



- A delay or blockage of the electrical signals that control the heartbeat.
- Another part of the heart taking over as pacemaker.
- Changes to heart tissue caused by changes in blood flow, damage to the heart's electrical system or stiffening or scarring of the heart tissue.
- Excessive exertion, strain or stress.
- An imbalance of fluids, hormones or electrolytes in the blood.
- Certain heart medications.

# Diagnosis

To diagnose a heart arrhythmia, a healthcare professional examines and asks about medical history and symptoms.

Tests to diagnose a heart arrhythmia may include:

- **Electrocardiogram (ECG or EKG).** This quick test measures the electrical activity of the heart. It can show how fast or how slow the heart is beating.
- **Holter monitor.** This portable ECG device can be worn for a day or more to record the heart's activity during daily activities.
- **Event recorder.** This portable ECG device is worn for up to 30 days or until an arrhythmia or symptoms occur. You typically press a button when symptoms occur.
- **Echocardiogram.** This test uses sound waves to take pictures of the beating heart. It can show the structure of the heart and heart valves. It can measure the strength of the heart. It also shows how blood flows through the heart.
- **Implantable loop recorder.** If symptoms are very infrequent, an event recorder may be implanted under the skin in the chest area. The device continuously records the heart's electrical activity. It can find irregular heart rhythms.

If an irregular heartbeat is not found during those tests, a healthcare professional may suggest more tests to try to trigger the arrhythmia. These tests may include:

**Stress test.** Some arrhythmias are triggered or worsened by exercise. During a stress test, the heart's activity is watched while you ride on a stationary bicycle or walk on a treadmill. If you can't exercise, you may be given medicine that affects the heart in a way that's similar to exercise.

**Tilt table test.** This test may be done if patient had fainting spells. the heart rate and blood pressure are checked as patient lie flat on a table. The table is then tilted to put in a standing position. A healthcare professional watches how the heart and nervous system respond to the change in angle.

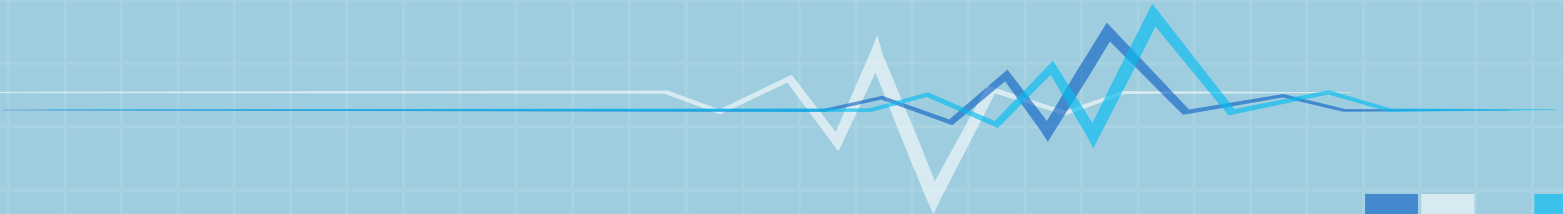
**Electrophysiological (EP) testing and mapping.** This test, also called an EP study, can confirm a diagnosis of tachycardia or find out where in the heart the faulty signaling occurs. An EP study is mostly used to diagnose isolated arrhythmias.

# Treatment

Treatment for a heart arrhythmia depends on whether the heart is beating too fast or too slow. Some heart arrhythmias do not need treatment.

Heart arrhythmia treatment is usually only needed if the irregular heartbeat causes significant symptoms or a risk of more-serious heart problems.

Treatment for heart arrhythmias may include medicines, special actions called vagal maneuvers, procedures or surgery.



## Medicines

Medicines used to treat heart arrhythmias depend on the type of irregular heartbeat and possible complications.

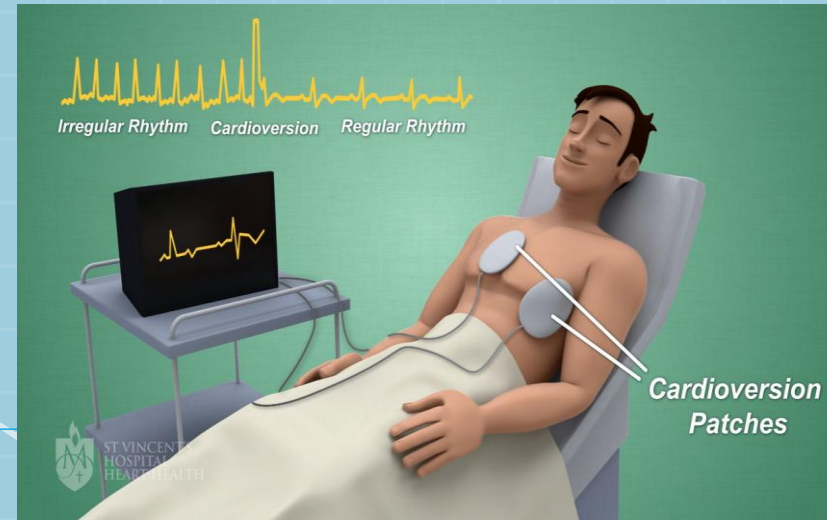
For example, most people with tachycardia are given medicine to control the heart rate and rhythm. If there is atrial fibrillation, blood thinners may be given to prevent blood clots.

## Therapies

Other treatments for heart arrhythmias include:

**Vagal maneuvers.** These are simple but specific actions , physical actions used to stimulate the vagus nerve to slow the heart rate. Vagal maneuvers may be recommended if have a very fast heartbeat due to supraventricular tachycardia.

**Cardioversion** Paddles or patches on the chest are used to give an electrical shock to the heart and help reset the heart rhythm.



## Treatment for heart arrhythmias by a procedure or surgery

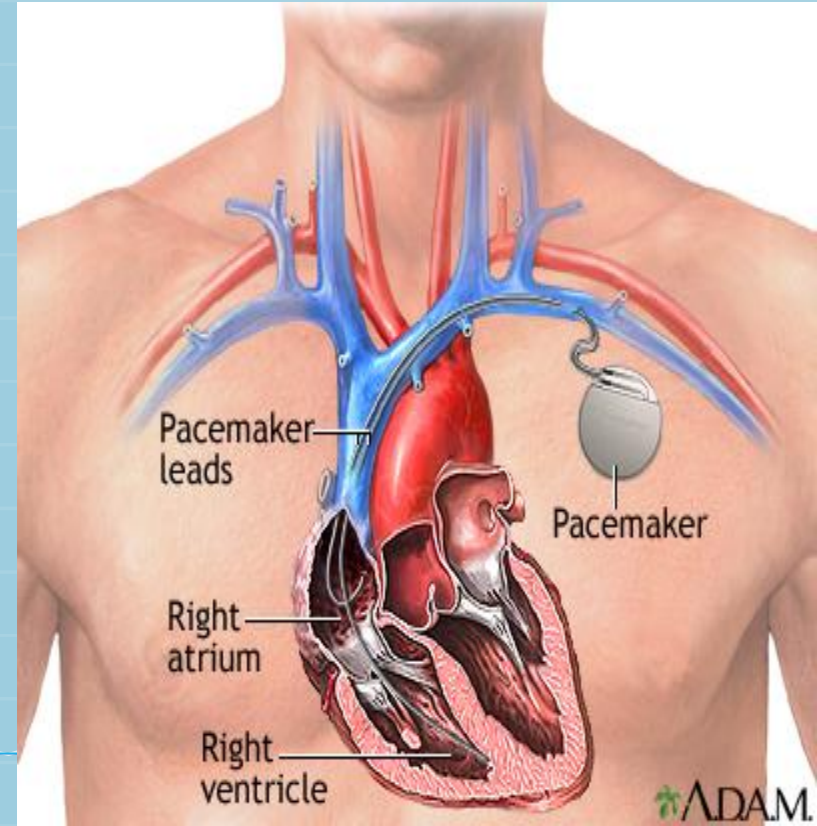
**Catheter ablation.** In this procedure, the doctor places one or more catheters into blood vessels to the heart. Sensors at the catheter tips use heat or cold energy to create tiny scars in the heart. The scars block irregular heart signals and restore the heartbeat.

**Pacemaker.** If slow heartbeats don't have a cause that can be fixed, a pacemaker may be needed. A pacemaker is a small device that's placed in the chest to help control the heartbeat.

**Implantable cardioverter-defibrillator (ICD).** This device is placed under the skin near the collarbone. It continuously checks the heart rhythm. If the device finds an irregular heartbeat, it sends out low- or high-energy shocks to reset the heart's rhythm.

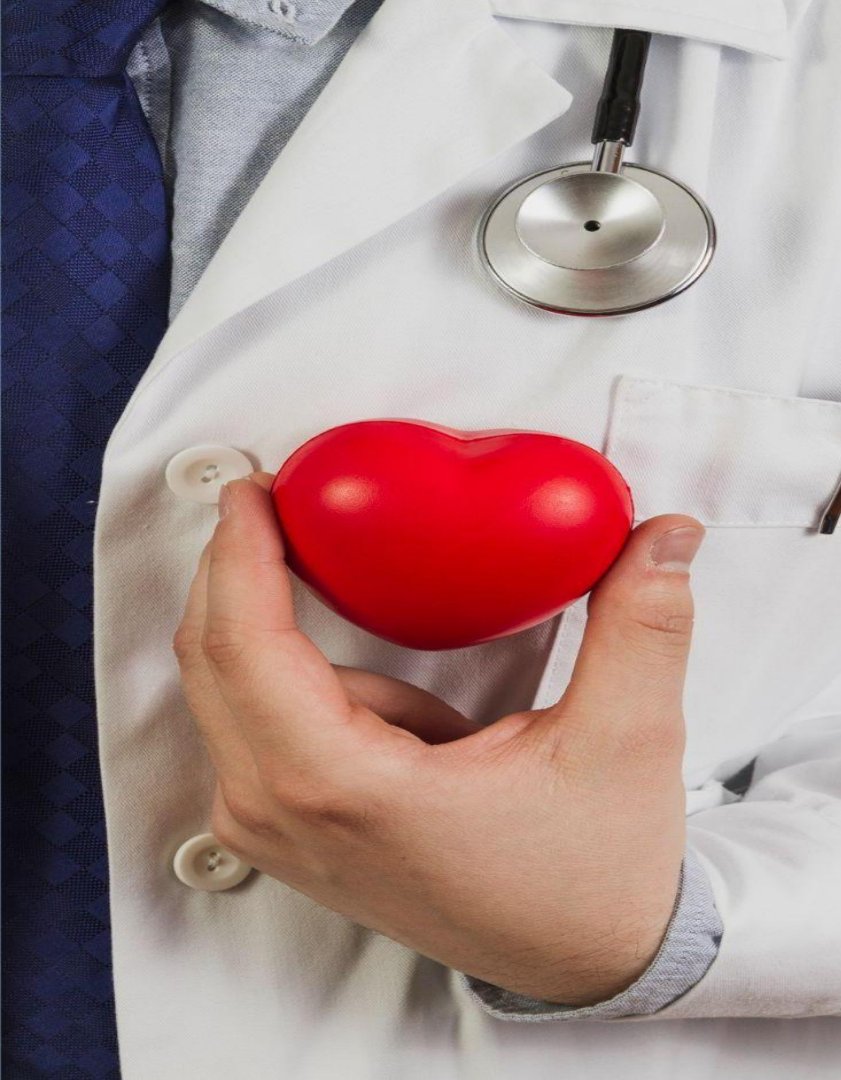
**Maze procedure.** a surgical treatment for atrial fibrillation (AFib), a type of irregular heartbeat, that creates a "maze" of scar tissue in the heart's upper chambers to block abnormal electrical signals.

**Coronary bypass graft surgery.** If there is severe coronary artery disease with an irregular heartbeat, may need this type of heart surgery.





**Any Question ?**



**Thanks for listening**

**نهاية المحاضرة السادسة**

# المحاضرة السابعة الجزء الاول

Chronic Obstructive  
Pulmonary Disease (COPD)

م.د. آمال فاضل غانم



# مسار المحاضرة

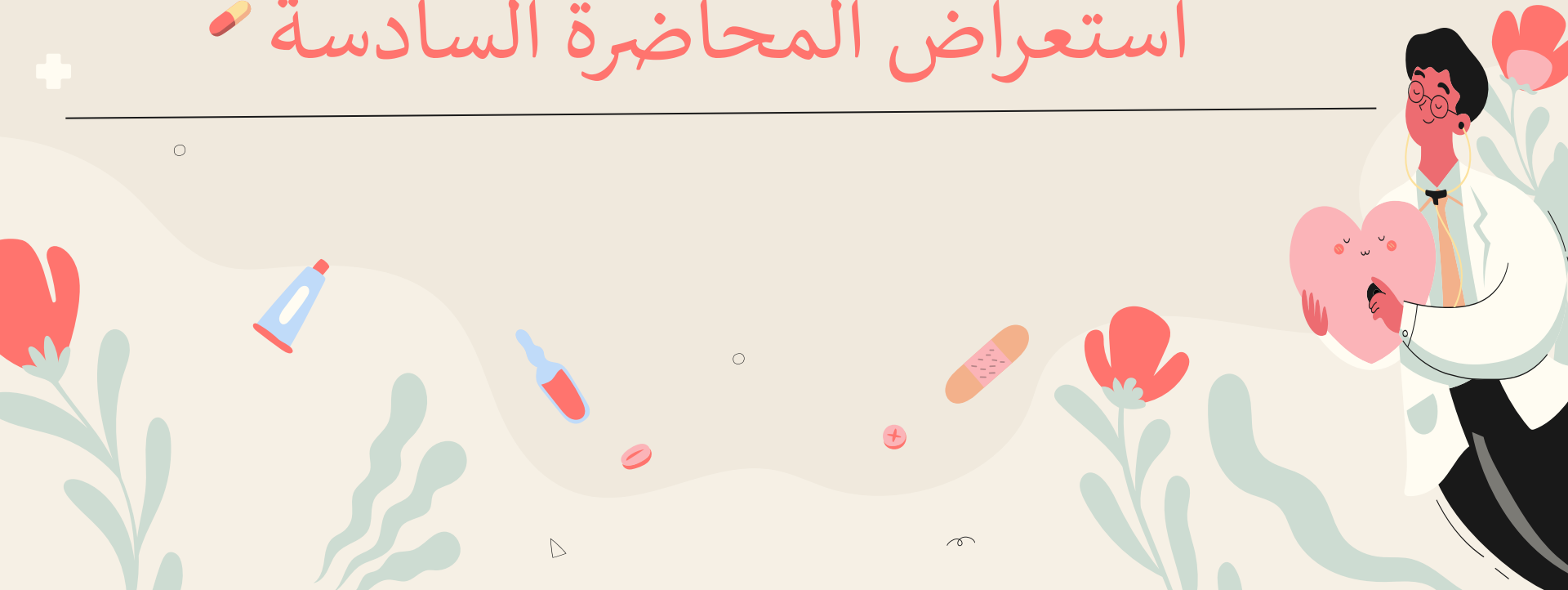


| الوقت    | العنوان الفرعي                                                                                                                                                                                        |
|----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 10 دقيقة | تمهيد المحاضرة                                                                                                                                                                                        |
|          | <b>Part 1 :Chronic Obstructive Pulmonary Disease (COPD)</b>                                                                                                                                           |
| 35 دقيقة | الالتهاب الرئوي الانسدادي المزمن : تعريفه والتوعية على مدى خطورته وانواعه والاسباب المؤدية الى الاصابة به                                                                                             |
|          | <b>Part 2 : العلامات والاعراض</b>                                                                                                                                                                     |
| 45 دقيقة | مناقشة كيفية ظهور الاعراض لاسيما والمرض مزمن وكا هو ارتباطه باسلوب الحياة مثل التدخين او العمل في الاماكن الملوثة او السكك قرب مصانع الورق او المنشآت النفطية طرق التشخيص ، كيفية العلاج ، والوقاية . |
| 5 دقيقة  | استراحة                                                                                                                                                                                               |
| 15 دقيقة | مراجعة بسيطة للموضوع وطرح الاسئلة على الطلبة والاستماع الى تجاربهم في حالة وجود فرد من العائلة يعاني من هذا المرض                                                                                     |
| 10 دقيقة | حضور الطلبة وخاتمة المحاضرة                                                                                                                                                                           |

## الهدف من المحاضرة

شرح مرض الانسداد الرئوي المزمن الذي يعاني منه معظم المدخنين والعاملين في المصانع والمعامل في جو ملوث وكذلك العاملين في المنشآت النفطية والساكنين بالقرب منها ، وتوعية الطلبة حول كيفية والوقاية من المرض لاسيما وان التدخين هو عامل مهم من عوامل الاصابة به .

# استعراض المحاضرة السادسة





وزارة التعليم العالي والبحث العلمي

الجامعة التقنية الجنوبية

المعهد التقني الطبي – البصرة

قسم تقنيات التخدير

[Anesthes.bti@stu.edu.iq](mailto:Anesthes.bti@stu.edu.iq)

E.Mail : [Presidency@stu.edu.iq](mailto:Presidency@stu.edu.iq)

العراق – البصرة – طريق الزبير العام – مقابل المدينة الرياضية

# Principles of Internal Medical Surgery

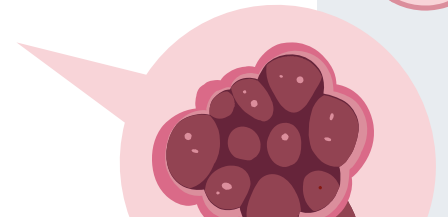
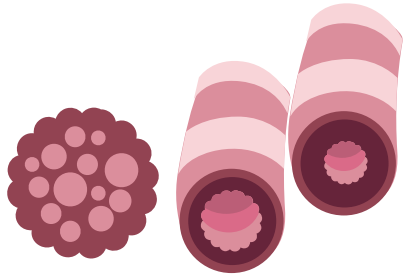
**Lecturer**

**Dr . Amaal Fadhil Ghanim**

**Email : [Dr.amaal.f.g@stu.edu.iq](mailto:Dr.amaal.f.g@stu.edu.iq)**

**The Second Stage**

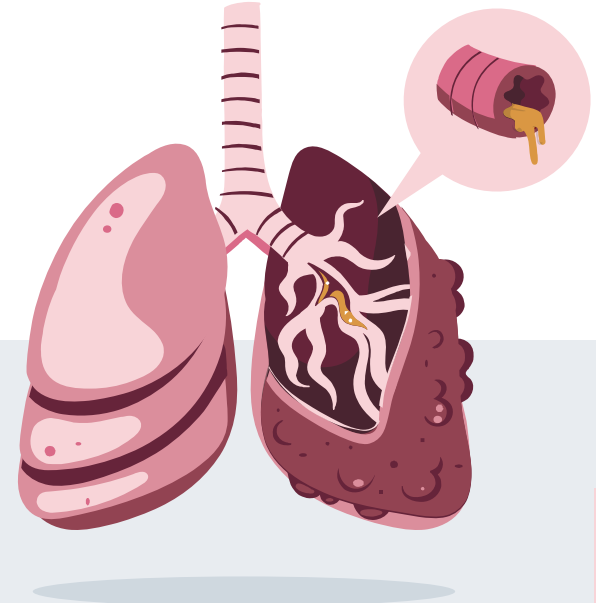
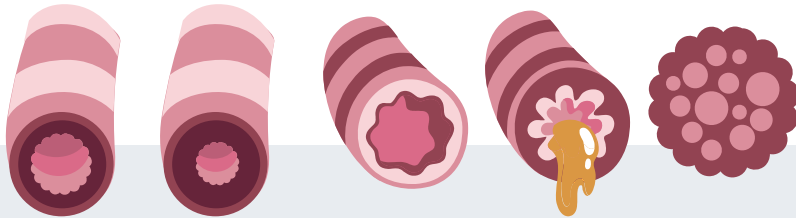
2026 - 2025



## Lec 7 subpart



# Chronic Obstructive Pulmonary Disease (COPD)



# Chronic Obstructive Pulmonary Disease (COPD)

**Chronic Obstructive Pulmonary Disease (COPD)** :-is an ongoing lung condition caused by damage to the lungs. The damage results in swelling and irritation, also called inflammation, inside the airways that limit airflow into and out of the lungs. This limited airflow is known as obstruction.



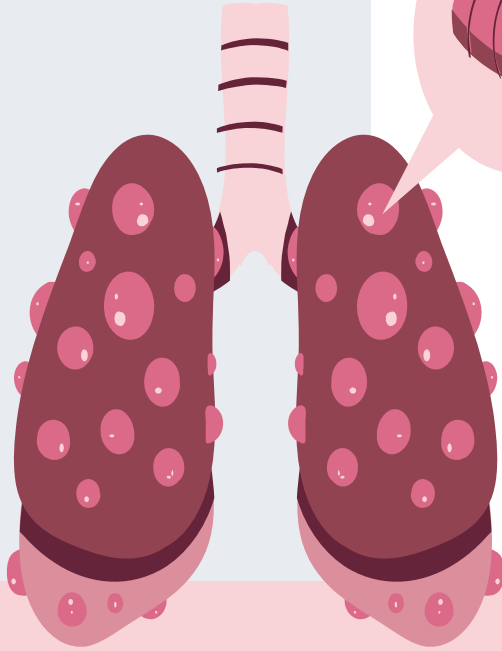


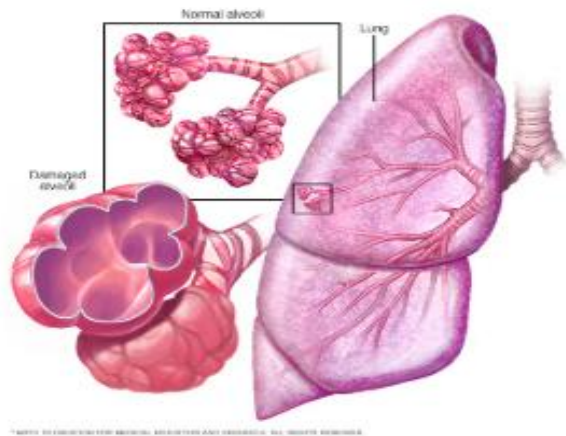
# Types of COPD

There are the two most common types of COPD:-

- 1- Emphysema .
- 2- Chronic Bronchitis.

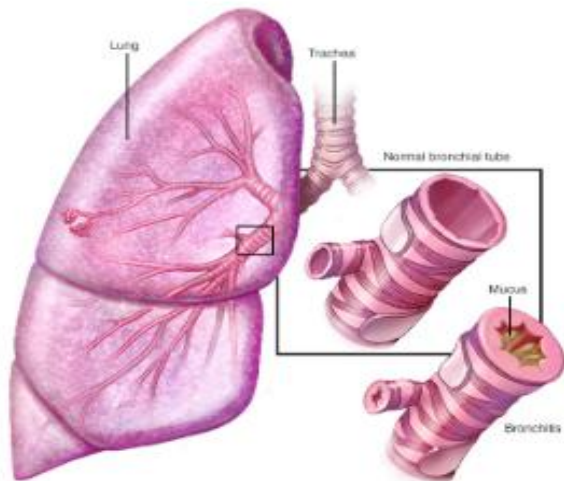
These two conditions usually occur together and can vary in severity among people with COPD.





## Emphysema

## Types of COPD



## Bronchitis



# COPD causes

COPD is most often caused by long-term exposure to irritating smoke, fumes, dust or chemicals. The most common cause is cigarette smoke.



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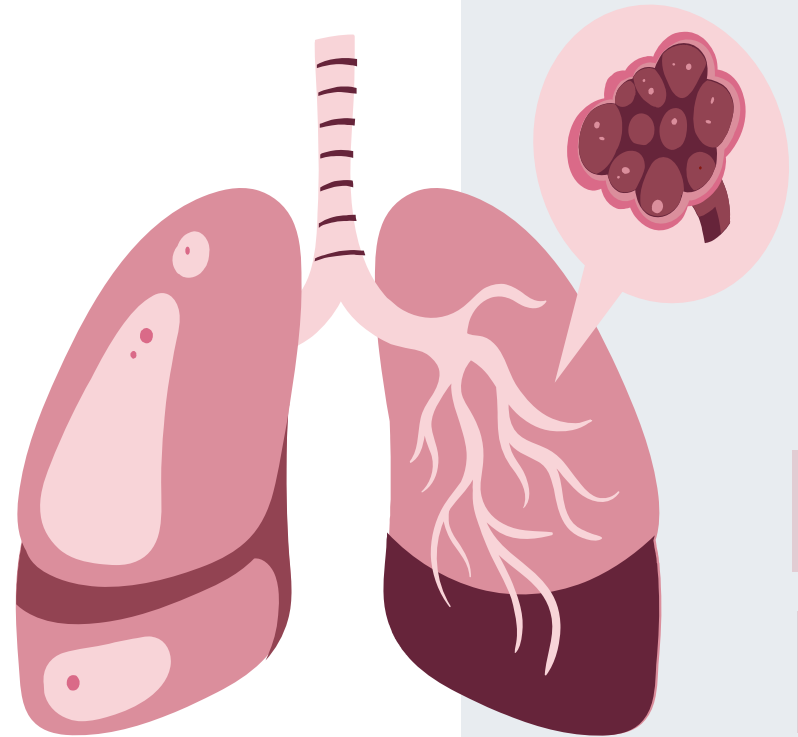
مستشفيات المناع العامة  
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# Symptoms



COPD symptoms often don't appear until a lot of lung damage has occurred. Symptoms usually worsen over time, especially if smoking or other irritating exposure continues.





# Symptoms



Symptoms of COPD may include:

- Trouble catching breath, especially during physical activities.
- Wheezing or whistling sounds when breathing.
- Ongoing cough that may bring up a lot of mucus. The mucus may be clear, white, yellow or greenish.
- Chest tightness or heaviness.
- Lack of energy or feeling very tired.
- Frequent lung infections.
- Losing weight without meaning to.
- Swelling in ankles, feet or legs.



## COPD CAUSES



Smoking



Pollution



AAT Deficiency



Age 40+

## COPD SYMPTOMS



Chest Tightness



Cough and Sputum



Chronic Dyspnea



Wheezing



Weight Loss

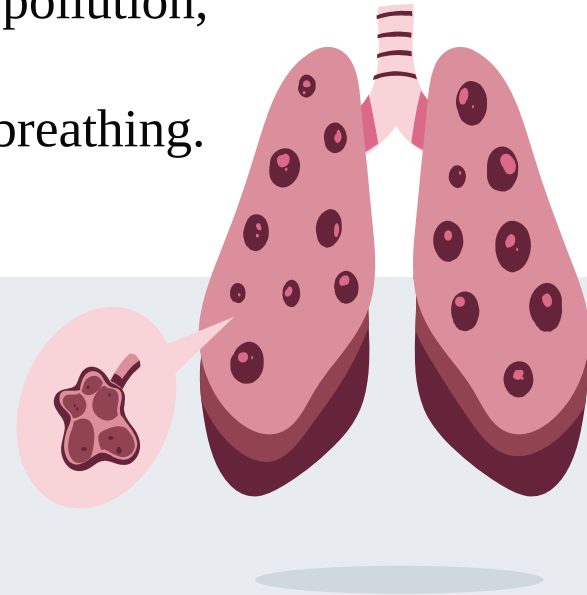
# Symptoms



People with COPD also are likely to have times when their symptoms become worse than the usual day-to-day variation. This time of worsening symptoms is called **an exacerbation** . Exacerbations can last for several days to weeks.

They can be caused by triggers such as smells, cold air, air pollution, colds or infections. Symptoms may include:

- Working harder than usual to breathe or having trouble breathing.
- Chest tightness.
- Coughing more often.
- More mucus or changes in mucus color or thickness.
- Fever.





# Risk factors



Risk factors for COPD include:

- **Tobacco smoke:-** The biggest risk factor for COPD is long-term cigarette smoking. The more years smoke and the more packs smoke, the greater risk. Pipe, cigar and marijuana smoking also may raise risk. People who breathe in large amounts of secondhand smoke are at risk of COPD too.
- **Asthma:-** Asthma is a condition in which the airways narrow and swell and may produce extra mucus.
- **Workplace exposure:-** Long-term exposure to chemical fumes, smoke, vapors and dusts in the workplace can irritate and cause swelling in the lungs. This can raise the risk of COPD.
- **Fumes from burning fuel:-** In the developing world, people exposed to fumes from burning fuel for cooking and heating in homes with poor airflow are at higher risk of COPD.
- **Genetics:-** genetic form of emphysema is not common.



# Diagnosis



## Spirometry

In this test, patient is breathe out quickly and forcefully through a tube connected to a machine. The machine measures how much air the lungs can hold and how quickly air moves in and out of the lungs. Spirometry diagnoses COPD and tells how much airflow is limited.



## Lung volume test

This test measures the amount of air the lungs hold at different times when breathing in and out.



## Lung diffusion test

This test shows how well the body moves oxygen and carbon dioxide between the lungs and the blood.



## Pulse oximetry

This simple test uses a small device placed on one of the fingers to measure how much oxygen is in the blood.



## Exercise stress test

An exercise test on a treadmill or stationary bike may be used to monitor heart and lung function during activity.

# Diagnosis

## Imaging



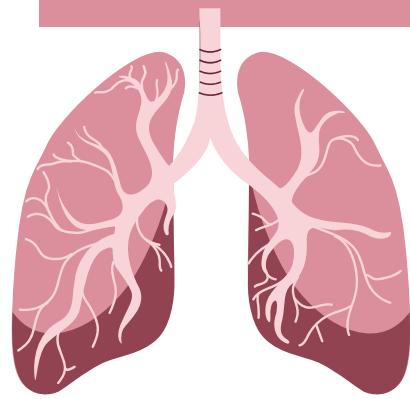
### Chest X-ray

A chest X-ray may show some lung changes from COPD. An X-ray also can rule out other lung problems or heart failure.



### CT scan combines X-ray

Images taken from different angles to create images of structures inside the body. A CT scan gives much greater detail of changes in the lungs than a chest X-ray does. CT scans can be used to check for lung cancer.



# Diagnosis



## Lab Tests



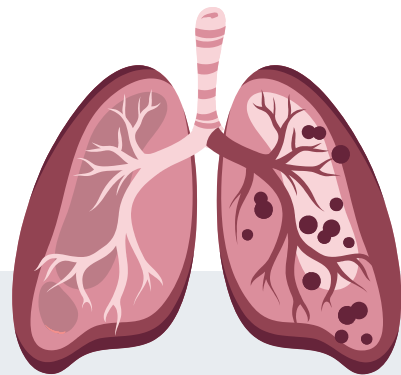
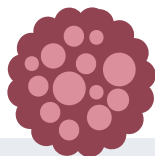
### Arterial blood gas analysis

This blood test measures how well the lungs are bringing oxygen into the blood and removing carbon dioxide



### Blood tests

Blood tests aren't used to diagnose COPD, but they may be used to find the cause of the symptoms or rule out other conditions



# Complications



COPD can cause many complications, including:

- **Respiratory infections:-** People with COPD are more likely to have colds, the flu and pneumonia. Any respiratory infection can make it much harder to breathe and could cause more damage to lung tissue.
- **Heart problems:-** For reasons that aren't fully understood, COPD can raise the risk of heart disease, including heart attack.
- **Lung cancer:-** People with COPD have a higher risk of getting lung cancer.
- **High blood pressure in lung arteries:-** COPD may cause high blood pressure in the arteries that bring blood to the lungs. This condition is called **pulmonary hypertension**.
- **Anxiety and depression:-** Difficulty breathing can keep person from doing activities that make enjoy.



# Treatment



## Quitting smoking

The most essential step in any treatment plan for COPD is to quit all smoking. Stopping smoking can keep COPD from getting worse and making it harder to breathe.



## Medicines

Several kinds of medicines are used to treat the symptoms and complications of COPD. Most medicines for COPD are given using an inhaler. This small hand-held device delivers the medicine straight to the lungs when breathe in the fine mist or powder.



# Treatment

## Surgery

surgery is an option for some people with some forms of severe COPD that aren't helped enough by medicines alone



**Lung volume reduction surgery.**



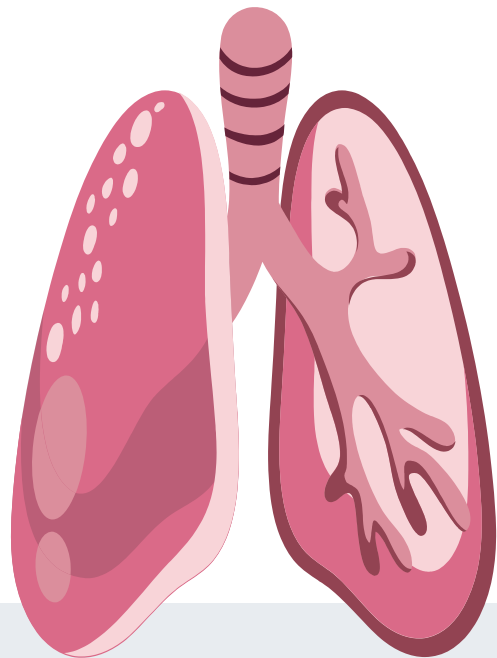
**Endoscopic lung volume reduction.**



**Bullectomy.**



**Lung Transplant.**



***Any Question ?***





**Thanks for attention**

نهاية المحاضرة السابعة الجزء الاول

# المحاضرة السابعة الجزء الثاني

## Bronchitis

م.د. آمال فاضل غانم



# مسار المحاضرة

| الوقت    | العنوان الفرعي                                                                                                    |
|----------|-------------------------------------------------------------------------------------------------------------------|
| 10 دقيقة | تمهيد المحاضرة                                                                                                    |
|          | Part 1 : <i>Bronchitis</i>                                                                                        |
| 35 دقيقة | التهاب الشعب الهوائية :- تعريفه وكيفية الاصابة به وانواعه الحاد والمزمن وكيفية التشخيص والعلاج                    |
|          | Part 2 : <i>Who does bronchitis affect?</i>                                                                       |
| 45 دقيقة | مناقشة من هم الاشخاص الاكثر عرضة للاصابة بهذا المرض وكيفية الوقاية منه وتجنب الاصابة به                           |
| 5 دقيقة  | استراحة                                                                                                           |
| 15 دقيقة | مراجعة بسيطة للموضوع وطرح الاسئلة على الطلبة والاستماع الى تجاربهم في حالة وجود فرد من العائلة يعاني من هذا المرض |
| 10 دقيقة | حضور الطلبة وخاتمة المحاضرة                                                                                       |

## الهدف من المحاضرة

الشرح التفصيلي والوافي لمرض التهاب الشعب الهوائية  
بنوعيه الحاد والمزمن وكيفية الوقاية منه من خلال  
○ معرفة من هم الاشخاص الاكثر عرضة لهذا المرض  
وكيفية التشخيص والعلاجات الممكنة.



# استعراض المحاضرة السابعة الجزء الثاني





وزارة التعليم العالي والبحث العلمي

الجامعة التقنية الجنوبية

المعهد التقني الطبي – البصرة

قسم تقنيات التخدير

[Anesthes.bti@stu.edu.iq](mailto:Anesthes.bti@stu.edu.iq)

[E.Mail : Presidency@stu.edu.iq](mailto:Presidency@stu.edu.iq)

العراق – البصرة – طريق الزبير العام – مقابل المدينة الرياضية

# Principles of Internal Medical Surgery

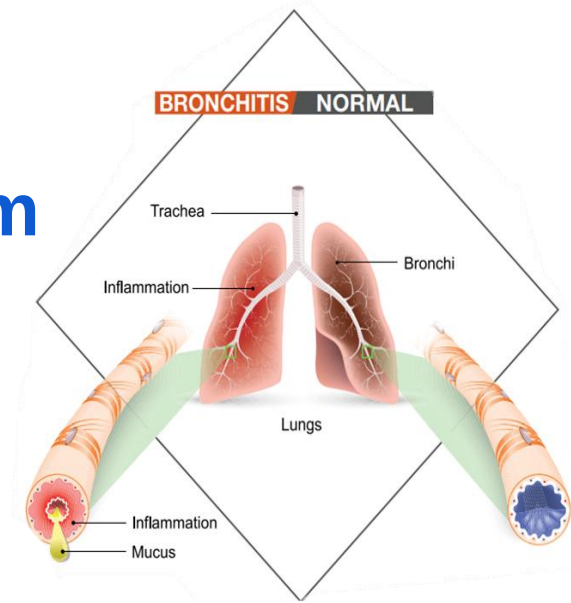
Lecturer

Dr . Amaal Fadhil Ghanim

Email : [Dr.amaal.f.g@stu.edu.iq](mailto:Dr.amaal.f.g@stu.edu.iq)

The Second Stage

2026 - 2025



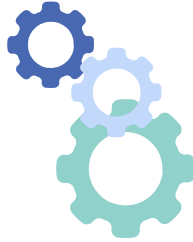
Lec. 7

# Bronchitis





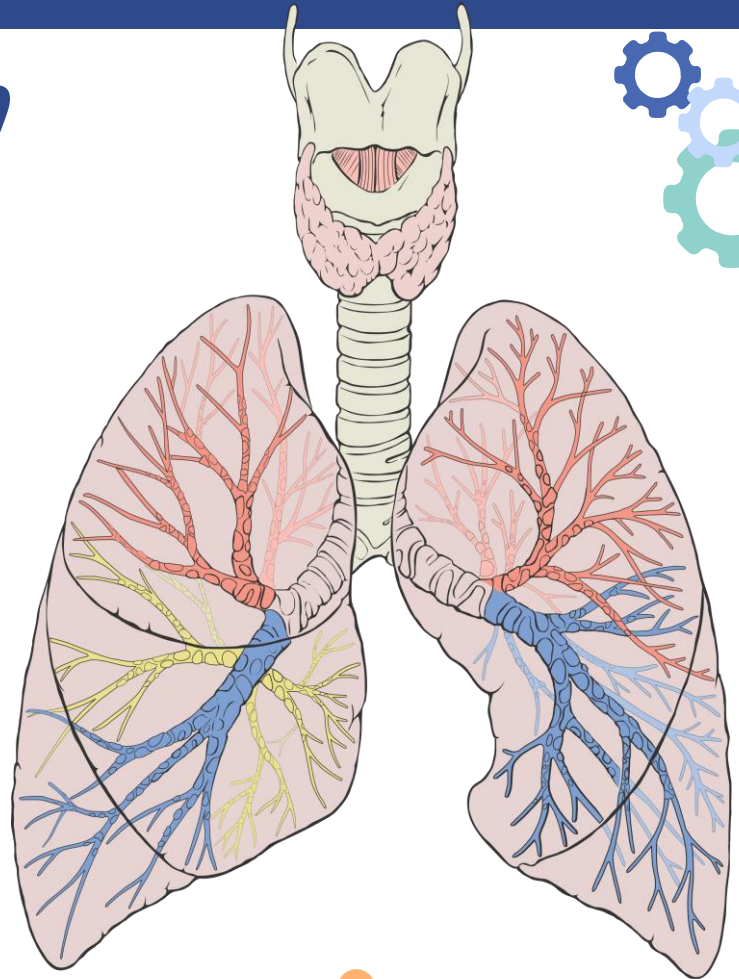
# Introduction

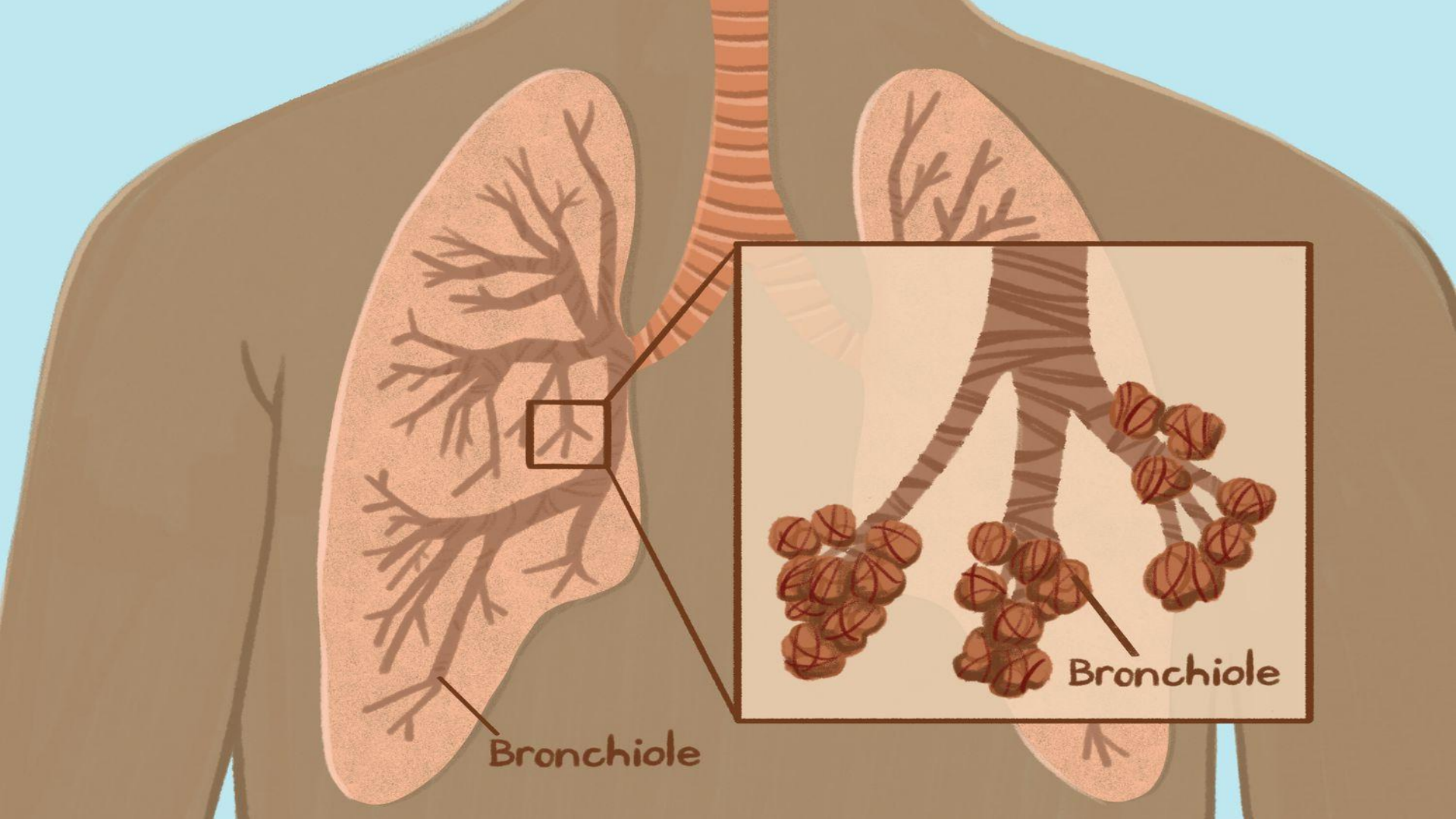


A bronchus is a passage or airway in the lower respiratory tract that conducts air into the lungs.

The first or primary bronchi which branch from the trachea at the carina are the right main bronchus and the left main bronchus.

These are the widest bronchi, and enter the right lung, and the left lung at each hilum. The main bronchi branch into narrower secondary bronchi or lobar bronchi, and these branch into narrower tertiary bronchi or segmental bronchi. The bronchi, when too narrow to be supported by cartilage, are known as bronchioles. No gas exchange takes place in the bronchi.

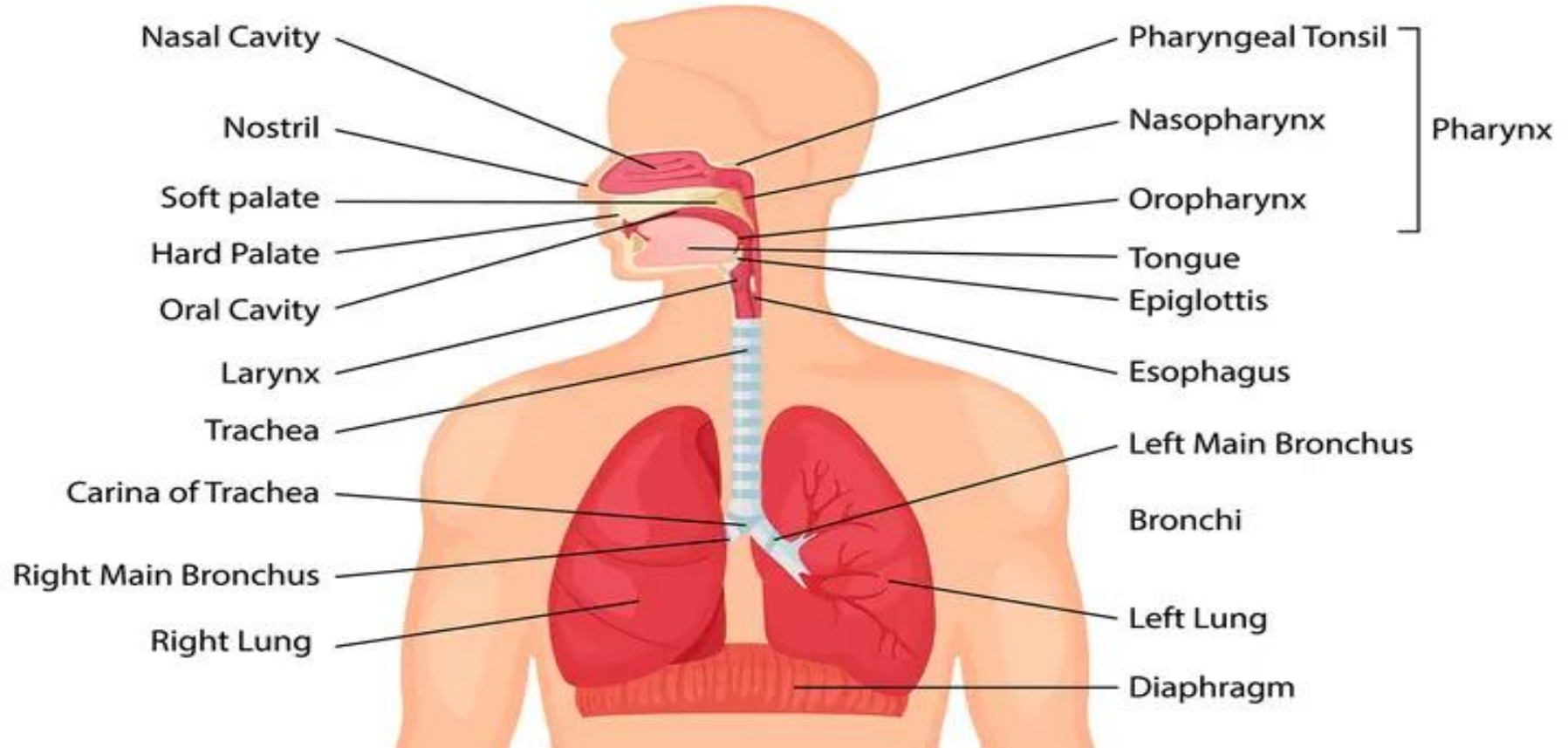




Bronchiole

Bronchiole

# Respiratory system





# Bronchitis



Bronchitis is an inflammation of the lining of bronchial tubes. These tubes carry air to and from the lungs. People who have bronchitis often cough up thickened mucus, which can be discolored.





## *Who does bronchitis affect?*



Anyone can get bronchitis, but there is a higher risk for people who:

- Smoke or are around someone who does.
- Have asthma, COPD or other breathing conditions.
- Have Gastroesophageal reflux disease (GERD) (chronic acid reflux).
- Have an autoimmune disorder or other illness that causes inflammation.
- Are around chemicals or toxins in the air.

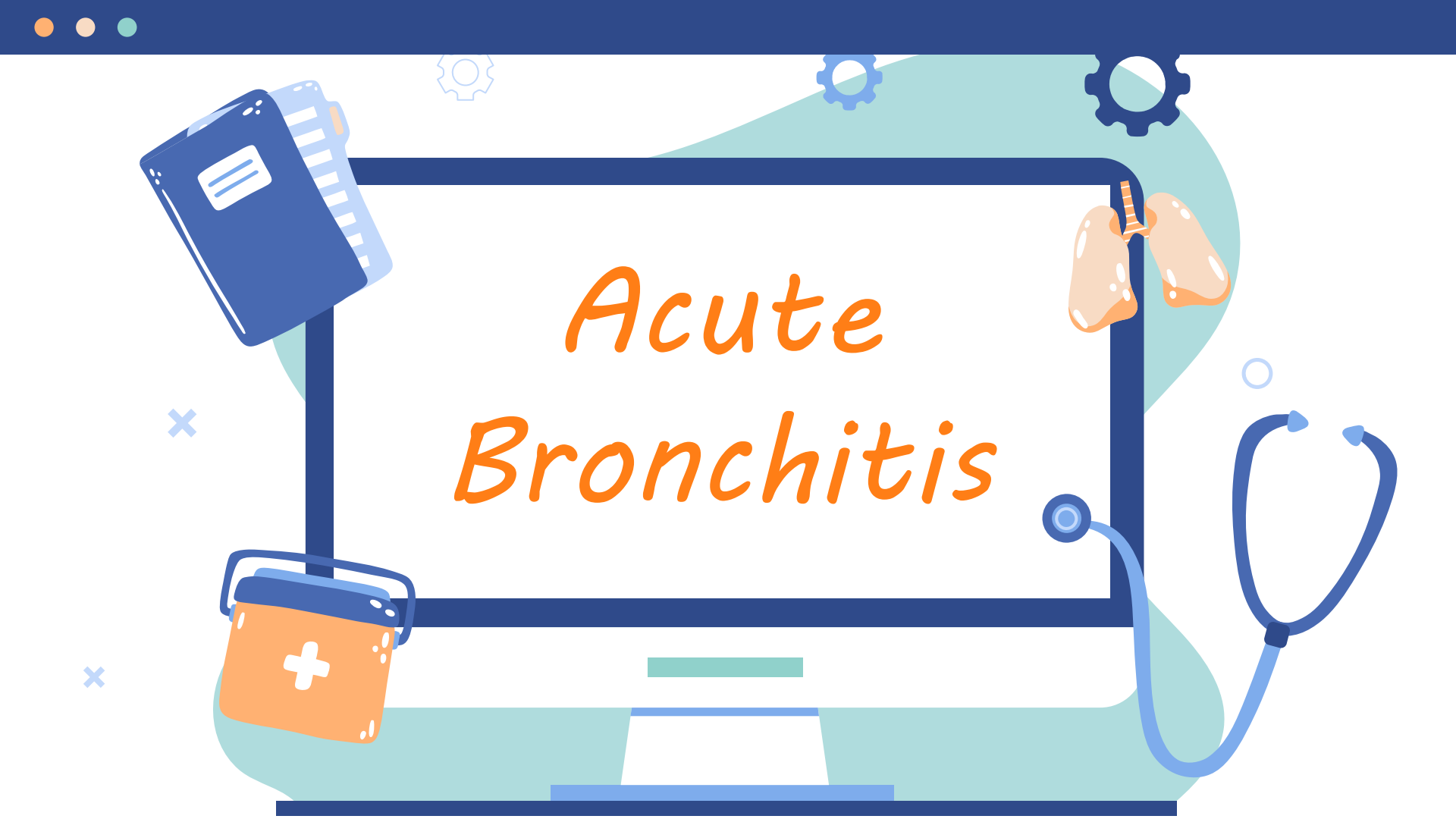


# Types of Bronchitis

Bronchitis may be :-

- 1- **Acute** start suddenly and be short term.
- 2- **Chronic** start gradually and become long term.



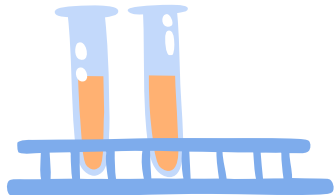
An illustration of a computer monitor with a dark blue frame. The screen is white and displays the text "Acute Bronchitis" in orange cursive. Surrounding the monitor are various medical and tech-related icons: a blue folder with papers in the top-left, a blue stethoscope on the right, an orange first aid kit with a white cross in the bottom-left, and a pair of orange lungs in the top-right. Three blue gears are positioned at the top, and two blue 'x' marks are on the left. The monitor sits on a light blue base.

# Acute Bronchitis



# Acute Bronchitis

- ✕ Acute bronchitis, which often develops from a cold or other respiratory infection, is very common. Also called a chest cold, acute bronchitis usually improves within a week to 10 days without lasting effects, although the cough may linger for weeks.



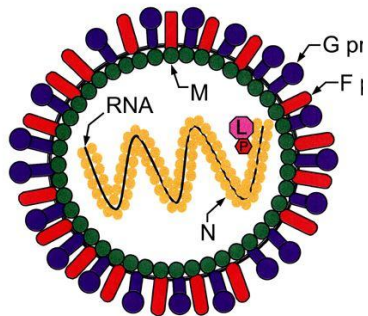


# Causes of Acute Bronchitis

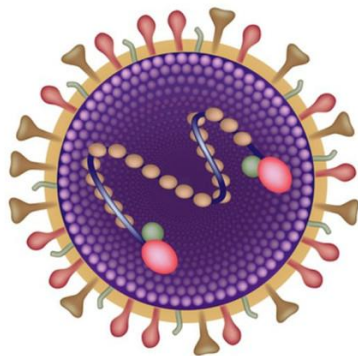


Acute bronchitis is most often caused by a viral infection. The most commonly identified viruses are rhinovirus, enterovirus, influenza A and B, parainfluenza, coronavirus, human metapneumovirus, and respiratory syncytial virus.

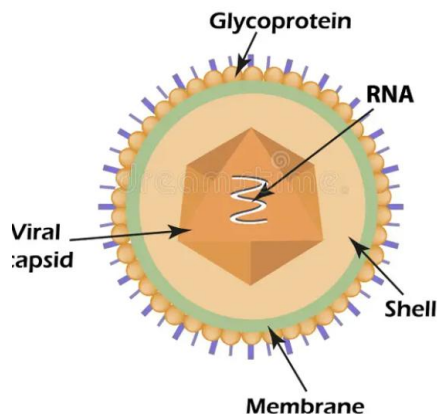
metapneumovirus



Respiratory Syncytial Virus



enterovirus



# Causes of Acute Bronchitis

Bacteria are detected in 1% to 10% of cases of acute bronchitis.

Atypical bacteria, such as *Mycoplasma pneumoniae*, *Chlamydomphila pneumoniae*, and *Bordetella pertussis*, are rare causes of acute bronchitis.

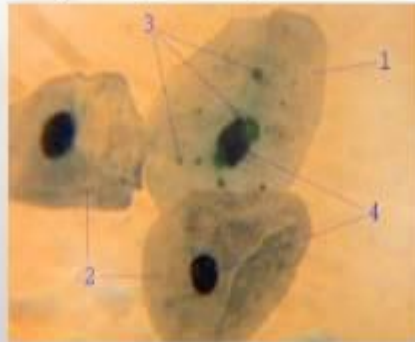
In a study of sputum samples of adults with acute cough for more than five days, *M. pneumoniae* was isolated in less than 1%.



*Mycoplasma pneumoniae*



*Chlamydomphila pneumoniae*



# Symptoms of Acute Bronchitis

Acute bronchitis symptoms include:

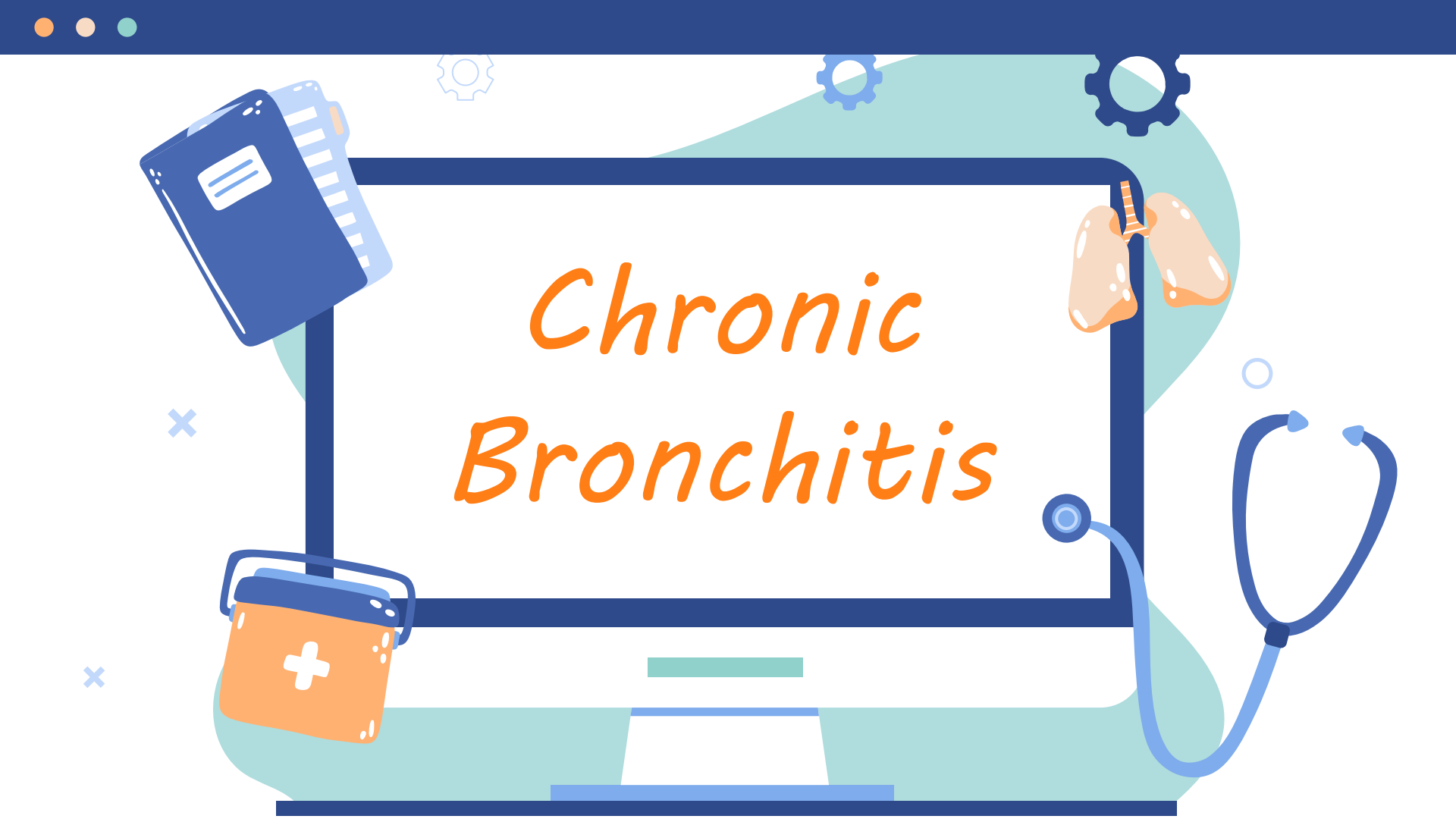
- Cough that tends to produce mucus.
- Shortness of breath.
- Sore throat.
- Soreness or tightness in the chest.
- Wheezing



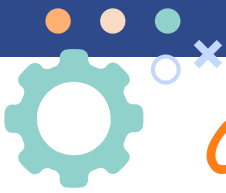
also there are other symptoms of the virus that infected the bronchial tubes and caused bronchitis, like:

- Body aches.
- A headache.
- A runny nose.



An illustration of a computer monitor with a dark blue frame. The screen is white and displays the text "Chronic Bronchitis" in a large, orange, cursive font. Surrounding the monitor are various medical and technology-related icons: a blue folder with a white label on the top left, a blue stethoscope on the right, a pair of orange lungs on the right, a blue gear at the top center, a blue gear at the top right, a blue gear at the top right, a blue 'x' on the left, a blue 'x' on the left, and an orange first aid kit with a white cross on the bottom left. The monitor is set against a light blue background with a dark blue border at the top.

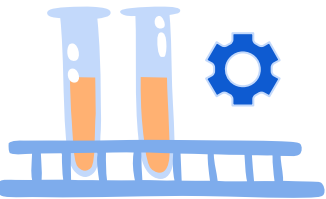
# *Chronic Bronchitis*



# Chronic Bronchitis



Chronic bronchitis, a more serious condition, is a constant irritation or inflammation of the lining of the bronchial tubes, often due to smoking. If there are repeated bouts of bronchitis, So have chronic bronchitis, which requires medical attention. Chronic bronchitis is one of the conditions included in chronic obstructive pulmonary disease (COPD).



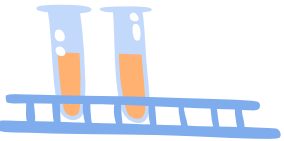


# Chronic Bronchitis

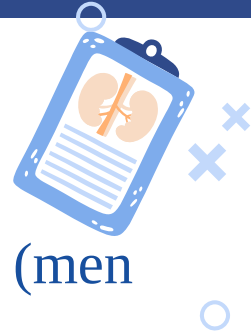


Chronic bronchitis is defined as a chronic productive cough lasting at least three months for two years, and at the same time, other possible causes of cough - pulmonary( bronchiectasis ) and non-pulmonary ( heart failure ) are excluded. The disease is further characterized by an obstructive ventilation disorder.

Chronic bronchitis can be considered a component of chronic obstructive pulmonary disease .



# Causes of Chronic Bronchitis

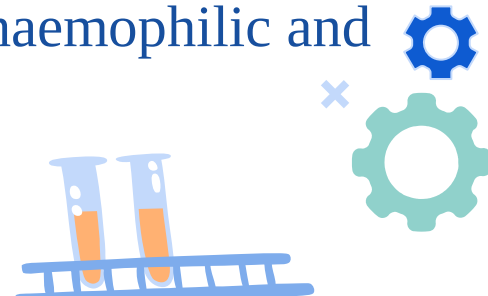


## ➤ Endogenous causes :

1. Age (incidence increases with age) and male gender (men are affected twice as often as women).
2. Individual predisposition – atopy, immune disorders.
3. Sinusitis (sino-bronchial syndrome).

## ➤ Exogenous causes :

1. Smoking – represents probably the most significant risk factor.
  2. Repeated respiratory infections – mainly haemophilic and pneumococcal.
  3. Work and environmental pollution.
- In some cases, do not know the cause.





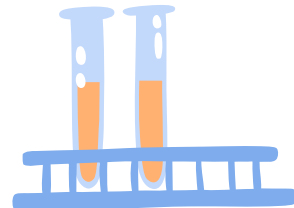
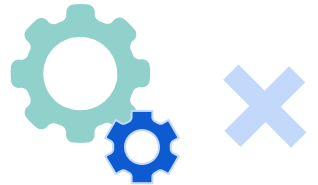
# Symptoms of Chronic Bronchitis



The main symptom of chronic bronchitis is a persistent (stubborn) cough with mucus that happens frequently for at least two years.

Other symptoms include:

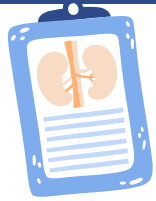
- ❖ A whistling sound when breathe (wheezing).
- ❖ Shortness of breath (dyspnea).
- ❖ Fast heart rate (tachycardia).
- ❖ Tiredness (fatigue).
- ❖ Chest pain.
- ❖ Unexplained weight loss.



## Types of Chronic Bronchitis

1. Simple chronic bronchitis.
2. Purulent chronic bronchitis.
3. Obstructive chronic bronchitis.





# Risk Factors of Bronchitis

Factors that increase risk of bronchitis include:

**Cigarette smoke:-** People who smoke or who live with a smoker are at higher risk of both acute bronchitis and chronic bronchitis.

**Low resistance:-** This may result from another acute illness, such as a cold, or from a chronic condition that compromises immune system. Older adults, infants and young children have greater vulnerability to infection.

**Exposure to irritants on the job :-** risk of developing bronchitis is greater if working around certain lung irritants, such as grains or textiles, or are exposed to chemical fumes.

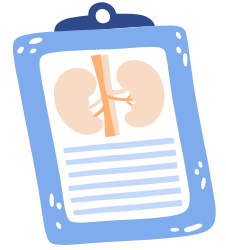
**Gastric reflux:-** Repeated bouts of severe heartburn can irritate the throat and make it more prone to developing bronchitis.





# *Diagnosis of Bronchitis*

During the first few days of illness, it can be difficult to distinguish the signs and symptoms of acute bronchitis from those of a common cold. During the physical exam, the doctor will use a stethoscope to listen closely to the lungs during breathe.



# Diagnosis of Bronchitis



In some cases, doctor may suggest the following tests:

- **Chest X-ray:-** Imaging can show if there's any damage or areas of concern in the lungs. A chest X-ray can help determine if there is pneumonia or another condition that may explain the cough. This is especially important if patient smoke or have ever smoked.
- **Sputum tests:-** Sputum is the mucus that patient cough up from the lungs. It can be tested to see if there is illnesses that could be helped by antibiotics.
- **Pulmonary function test:-** During a pulmonary function test, patient blow into a device called a spirometer, which measures how much air of the lungs can hold and how quickly it can get air out of the lungs. This test checks for signs of asthma, chronic bronchitis or emphysema.
- **Blood tests:-** This checks the levels of oxygen and carbon dioxide in the blood.
- **Electrocardiogram (ECG or EKG):-** use an ECG or EKG to check how well the heart is working.



# Treatment of Bronchitis

1. Most cases of acute bronchitis get better without treatment, usually within a couple of weeks.

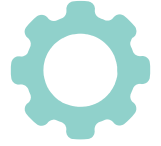
## Medications

In some circumstances, the doctor may recommend other medications, including:

- **Cough medicine:-** If the cough keeps patient from sleeping, it might try cough suppressants at bedtime.
- **Other medications:-** If there is allergies, asthma or chronic obstructive pulmonary disease (COPD), the doctor may recommend an inhaler and other medications to reduce inflammation and open narrowed passages in the lungs.
- **Antibiotics:-** Because most cases of acute bronchitis are caused by viral infections, antibiotics aren't effective. However, if the doctor suspects that there is a bacterial infection, may prescribe an antibiotic.



# Treatment of Bronchitis



## Therapies

If the case is chronic bronchitis, may benefit from:

- **Pulmonary rehabilitation**:-This is a breathing exercise program in which a respiratory therapist teaches patient how to breathe more easily and increase the ability to be physically active.
- **Oxygen therapy**:-This delivers extra oxygen to help breathe.



## Lifestyle and home remedies

If anyone have bronchitis, to help him feel better, may want to try the following self-care measures:

- **Get enough rest:**-Rest and sleep help the body heal.
- **Drink plenty of fluids:**- Staying hydrated can help to thin mucus.
- **Avoid lung irritants:**- Don't smoke. Wear a mask when the air is polluted or if there is any exposed to irritants, such as paint or household cleaners with strong fumes.



- **Use a humidifier:**-Warm, moist air helps relieve coughs and loosens mucus in airways.

Be sure to clean the humidifier according to the manufacturer's recommendations to avoid the growth of bacteria and fungi in the water container.

- **Consider a face covering in cold air** :-If cold air makes cough worse and causes shortness of breath, put on a face mask



*Any Question ?*





*Thanks for attention*



نهاية المحاضرة السابعة الجزء الثاني

# المحاضرة الثامنة

## Asthma

م.د. آمال فاضل غانم



# مسار المحاضرة

| الوقت    | العنوان الفرعي                                                                          |
|----------|-----------------------------------------------------------------------------------------|
| 10 دقيقة | تمهيد المحاضرة                                                                          |
| 30 دقيقة | Part 1 : <i>Asthma</i>                                                                  |
| 5 دقيقة  | نشاط جماعي :- اسئلة حول حالات الربو التي مرت على الطلبة وان كان احد افراد اسرهم مصاب به |
| 30 دقيقة | Part 2 : <i>Asthma classification</i>                                                   |
| 15 دقيقة | مناقشة سبل الحياة الصحية للتعايش مع حالة الربو                                          |
| 5 دقيقة  | Rest                                                                                    |
| 15 دقيقة | مراجعة المحاضرة مع توضيح الواجب                                                         |
| 10 دقيقة | حضور الطلبة وخاتمة المحاضرة                                                             |

# الهدف من المحاضرة

توضيح مرض الربو وكيفية السيطرة عليه كونه  
من الامراض غير القابلة للشفاء ، ولذلك يجب  
التعرف على آلية التعاون مع الطبيب  
المختص لمتابعة الحالة وتقليل الاعراض.



# استعراض المحاضرة الثامنة





وزارة التعليم العالي والبحث العلمي

الجامعة التقنية الجنوبية

المعهد التقني الطبي – البصرة

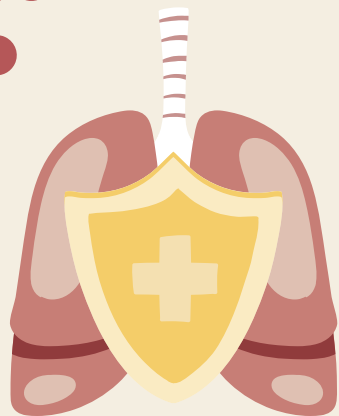
قسم تقنيات التخدير

[Anesthes.bti@stu.edu.iq](mailto:Anesthes.bti@stu.edu.iq)

[E.Mail : Presidency@stu.edu.iq](mailto:Presidency@stu.edu.iq)

العراق – البصرة – طريق الزبير العام – مقابل المدينة الرياضية

# Principles of Internal Medical Surgery



**Lecturer**

**Dr . Amaal Fadhil Ghanim**

**Email :** [Dr.amaal.f.g@stu.edu.iq](mailto:Dr.amaal.f.g@stu.edu.iq)

**The Second Stage**

2026 - 2025



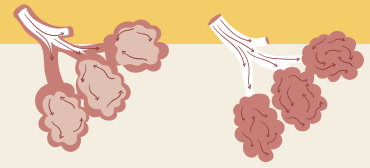
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# *Asthma*

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# Asthma



Asthma is a condition in which the airways narrow and swell and may produce extra mucus. This can make breathing difficult and trigger coughing, a whistling sound (wheezing) when breathe out and shortness of breath.

For some people, asthma is a minor nuisance. For others, it can be a major problem that interferes with daily activities and may lead to a life-threatening asthma attack.



# Asthma



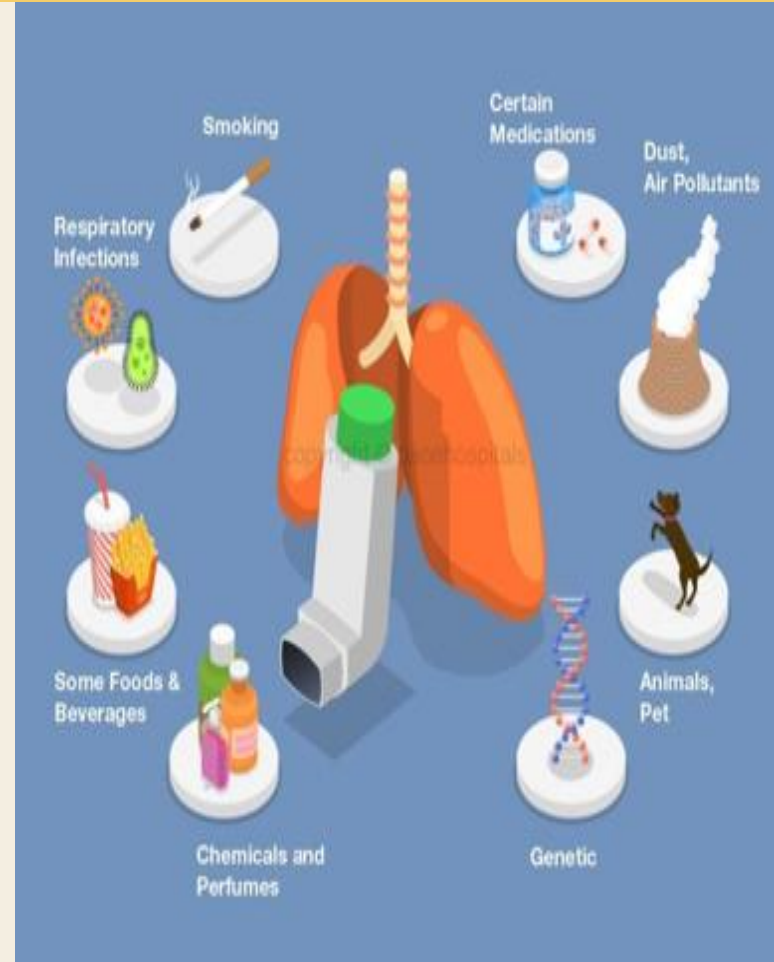
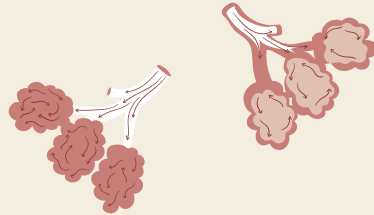
Asthma can't be cured, but its symptoms can be controlled. Because asthma often changes over time, it's important for people who have this condition to work with their doctor to track the signs and symptoms and adjust the treatment as needed.



# Causes



It isn't clear why some people get asthma and others don't, but it's probably due to a combination of environmental and inherited (genetic) factors.



# Asthma Triggers



Exposure to various irritants and substances that trigger allergies (allergens) can trigger signs and symptoms of asthma. Asthma triggers are different from person to person and can include:

- Airborne allergens, such as pollen, dust mites, mold spores.
- Respiratory infections, such as the common cold.
- Physical activity.
- Cold air.
- Air pollutants and irritants, such as smoke and chemicals used in farming, hairdressing and manufacturing
- Certain medications, including beta blockers, aspirin, and nonsteroidal anti-inflammatory drugs.
- Strong emotions and stress.
- Sulfites and preservatives added to some types of foods and beverages.
- Gastroesophageal reflux disease (GERD), a condition in which stomach acids back up into throat.



mold spores



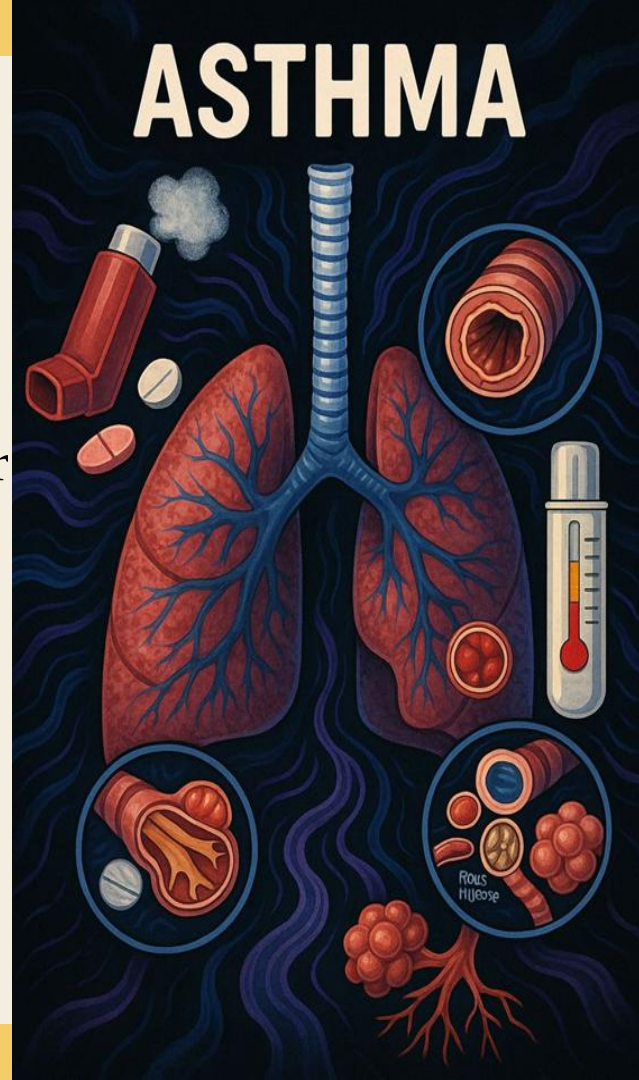
© David Speers FRPS FRMS/Corbis

dust mites

# *Risk Factors*

A number of factors are thought to increase chances of developing asthma. They include:

- Having a blood relative with asthma, such as a parent or sibling.
- Having another allergic condition, such as atopic dermatitis — which causes red, itchy skin — or hay fever — which causes a runny nose, congestion and itchy eyes.
- Being overweight.
- Being a smoker, or exposure to secondhand smoke.
- Exposure to exhaust fumes or other types of pollution.



# Symptoms

Asthma symptoms vary from person to person.

Patient may have infrequent asthma attacks, have symptoms only at certain times — such as when exercising — or have symptoms all the time.



# Symptoms

Asthma signs and symptoms include:

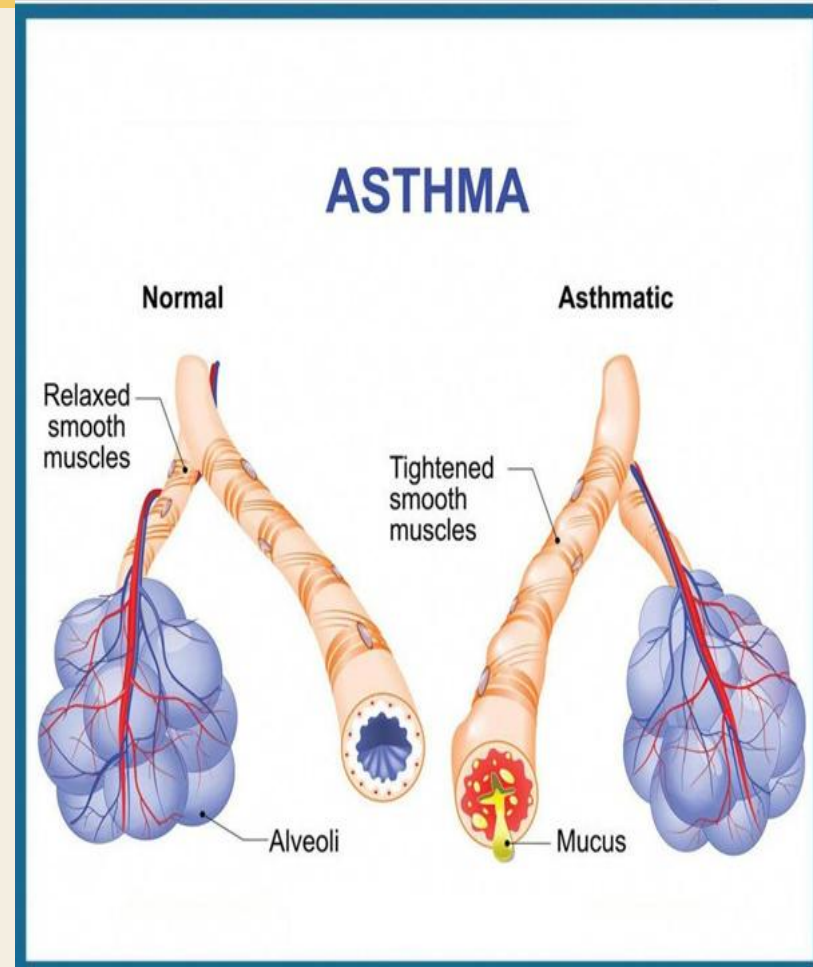
- Shortness of breath.
- Chest tightness or pain.
- Wheezing when exhaling, which is a common sign of asthma in children.
- Trouble sleeping caused by shortness of breath, coughing or wheezing.
- Coughing or wheezing attacks that are worsened by a respiratory virus, such as a cold or the flu.



# Symptoms

Signs asthma is probably **worsening** include:

- Asthma signs and symptoms that are more frequent and bothersome
- Increasing difficulty breathing, as measured with a device used to check how well the lungs are working (peak flow meter)
- The need to use a quick-relief inhaler more often.



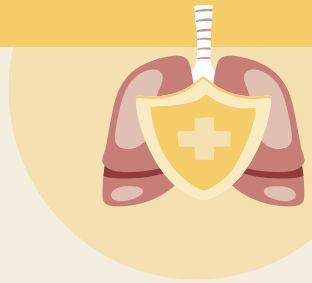
# *How Asthma is classified?*

To classify Asthma severity, the doctor will consider how often the patient have signs and symptoms and how severe they are. The doctor will also consider the results of physical exam and diagnostic tests.

Determining Asthma severity helps the doctor choose the best treatment. Asthma severity often changes over time, requiring treatment adjustments.



# Asthma classification



Asthma is classified into four general categories:

| Class of Asthma     | Signs and symptoms                                                      |
|---------------------|-------------------------------------------------------------------------|
| Mild intermittent   | Mild symptoms up to two days a week and up to two nights a month.       |
| Mild persistent     | Symptoms more than twice a week, but no more than once in a single day. |
| Moderate persistent | Symptoms once a day and more than one night a week.                     |
| Severe persistent   | Symptoms throughout the day on most days and frequently at night.       |

# Diagnosis



## Physical exam

The doctor will perform a physical exam to rule out other possible conditions, such as a respiratory infection or chronic obstructive pulmonary disease (COPD).



# Diagnosis

## Tests to measure lung function

Patient may be given lung function tests to determine how much air moves in and out in breathe. These tests may include:

- **Spirometry:-** This test estimates the narrowing of the bronchial tubes by checking how much air can exhale after a deep breath and how fast can breathe out.
- **Peak flow:-** A peak flow meter is a simple device that measures how hard can breathe out. Lower than usual peak flow readings are a sign that the lungs may not be working as well and that there asthma may be getting worse.



# Diagnosis

## Additional tests

Other tests to diagnose asthma include:

- **Methacholine challenge:**-Methacholine is a known asthma trigger. When inhaled, it will cause the airways to narrow slightly. If patient react to the methacholine, he likely have asthma. This test may be used even if the initial lung function test is normal.
- **Imaging tests:-** A chest X-ray can help identify any structural abnormalities or diseases (such as infection) that can cause or aggravate breathing problems.
- **Allergy testing.** Allergy tests can be performed by a skin test or blood test. They tell if there is allergic .
- **Sputum eosinophils.** This test looks for certain white blood cells (eosinophils) in the sputum that discharge during coughing.

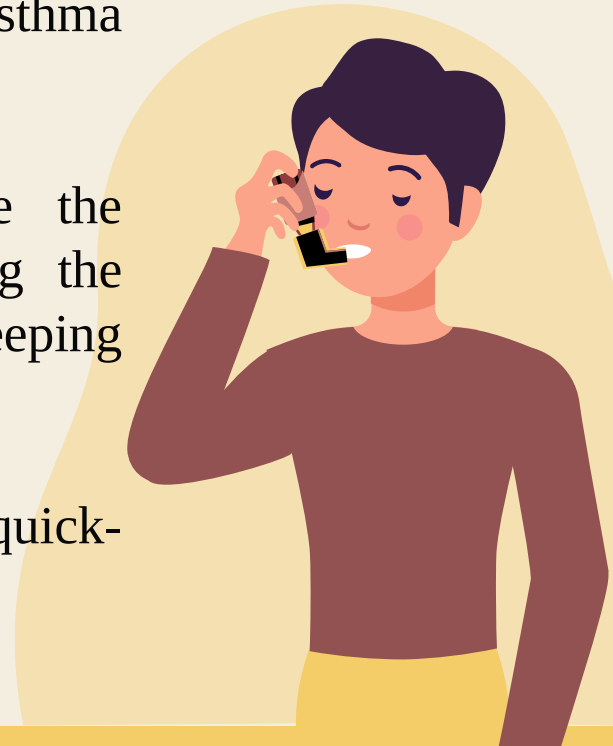


# Treatment

Prevention and long-term control are key to stopping asthma attacks before they start.

Treatment usually involves learning to recognize the triggers, taking steps to avoid triggers and tracking the breathing to make sure that medications are keeping symptoms under control.

In case of an asthma flare-up, there may need to use a quick-relief inhaler.



# Treatment

## Medications

The right medications for any patient depend on a number of things :- age, symptoms, Asthma triggers and what works best to keep the Asthma under control.

**1-Long-term asthma control medications:-** generally taken daily, are the cornerstone of asthma treatment:-

- **Inhaled corticosteroids .**
- **Leukotriene modifiers:-**These oral medications, help relieve asthma symptoms.
- **Theophylline:-** is a daily pill that helps keep the airways open by relaxing the muscles around the airways.



# Treatment

## Medications



**2- Quick-relief (rescue) medications** are used as needed for rapid, short-term symptom relief during an asthma attack.

- **Short-acting beta agonists:-** These inhaled, quick-relief bronchodilators act within minutes to rapidly ease symptoms during an asthma attack.
- **Anticholinergic agents:-** They're mostly used for emphysema and chronic bronchitis, but can be used to treat asthma.
- **Oral and intravenous corticosteroids:-** relieve airway inflammation caused by severe asthma.

## *Lifestyle and Home Remedies*

Although many people with asthma rely on medications to prevent and relieve symptoms, several things can do to maintain health and lessen the possibility of asthma attacks.

**Use air conditioner:-** Air conditioning reduces the amount of airborne pollen from trees, grasses and weeds that finds its way indoors.



## Quick Clean Bedroom



## *Lifestyle and Home Remedies*

**Decontaminate décor:-** Minimize dust that may worsen nighttime symptoms by replacing certain items in the bedroom.

**Maintain optimal humidity:-** If person live in a damp climate, talk to the doctor about using a dehumidifier.

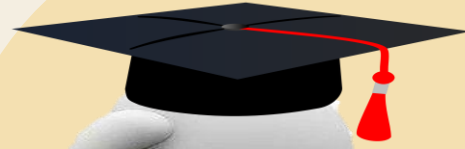
## *Lifestyle and Home Remedies*

**Cover nose and mouth if it's cold out:-** with asthma is worsened by cold or dry air, wearing a face mask can help.

**Control heartburn and gastroesophageal reflux disease (GERD).** It's possible that the acid reflux that causes heartburn may damage lung airways and worsen asthma symptoms.



*Any Question ?*



*Thanks for Listening*



# المحاضرة التاسعة

## Renal Failure Disease

م.د. آمال فاضل غانم



# مسار المحاضرة

| الوقت    | العنوان الفرعي                                                                                                                     |
|----------|------------------------------------------------------------------------------------------------------------------------------------|
| 10 دقيقة | تمهيد المحاضرة                                                                                                                     |
| 30 دقيقة | Part 1 : <i>Renal Failure Disease</i>                                                                                              |
| 5 دقيقة  | نشاط جماعي :- كيفية التعرف على الكمية النموذجية المطلوبة من الماء لكل جسم لكي نتمتع بصحة عالية للكليتين وكيف يتم اعتماد هذه الكمية |
| 30 دقيقة | Part 2 : <i>The Five Stages of End-stage Renal Disease</i>                                                                         |
| 15 دقيقة | مناقشة عملية الغسيل الكلوي وقرب المراكز الخاصة بهذا الشأن في المحافظات                                                             |
| 5 دقيقة  | Rest                                                                                                                               |
| 15 دقيقة | مراجعة المحاضرة مع مناقشة الطلاب حول كيفية اختيار متبرع لمرضى العجز الكلوي                                                         |
| 10 دقيقة | حضور الطلبة وخاتمة المحاضرة                                                                                                        |

# الهدف من المحاضرة

تسليط الضوء حول امراض الكليتين ضمن  
الجهاز البولي وكيفية الوقاية من هذه الامراض  
وخصوصا مرض الفشل الكلوي بنوعيه الحاد  
والمزمن .



# استعراض المحاضرة التاسعة





وزارة التعليم العالي والبحث العلمي

الجامعة التقنية الجنوبية

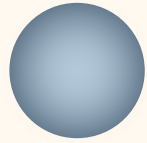
المعهد التقني الطبي – البصرة

قسم تقنيات التخدير

[Anesthes.bti@stu.edu.iq](mailto:Anesthes.bti@stu.edu.iq)

E.Mail : [Presidency@stu.edu.iq](mailto:Presidency@stu.edu.iq)

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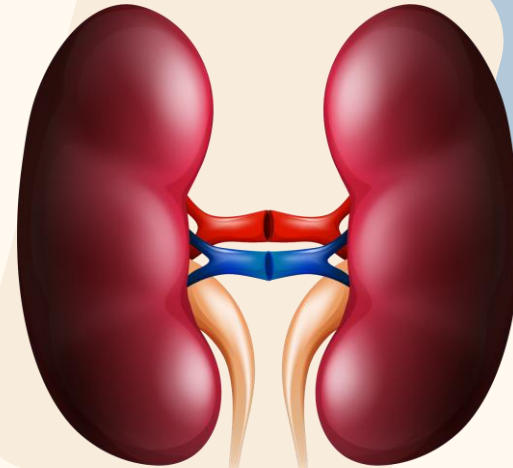
# Principles of Internal Medical Surgery

**Lecturer**

**Dr . Amaal Fadhil Ghanim**

**Email : [Dr.amaal.f.g@stu.edu.iq](mailto:Dr.amaal.f.g@stu.edu.iq)**

**The Second Stage**  
2026 - 2025



*Lec.9*

# *Renal Failure Disease*



# *The kidney*



The kidneys are two bean-shaped organs, each about the size of a fist. They are found in your back on either side of the spine.

Healthy kidneys clean waste products from the blood by making urine.

They also balance the amount of certain elements in the blood (such as sodium, potassium and calcium)

# Renal Failure

Renal Failure , also known as **Kidney Failure** or End-Stage Renal Disease (ESRD), is a medical condition in which the kidneys can no longer adequately filter waste products from the blood, functioning at less than 15% of normal levels.



# *Types of Renal Failure*

There are 2 main types of Renal failure:

1. Acute Renal Failure (ARF), also called Acute Kidney Injury (AKI).
2. Chronic Renal Failure (CRF).



---

## *What are The Five Stages of End-Stage Renal Disease*

There are stages of Kidney Disease according to the **estimated Glomerular Filtration Rate (eGFR)**, this is a blood test.

The eGFR is a calculation of how well kidneys filter substances. A normal eGFR is above 90. The lowest eGFR is 0, which means there's no remaining kidney function.



# *The Five Stages of End-stage Renal Disease*

The five stages of any kidney disease include:

1. **Stage I:-** GFR is 90. At this stage, kidneys have mild damage but still function normally.
2. **Stage II:-** GFR may be as low as 60 or as high as 89. there is more damage to kidneys than in stage I, but they still function well.
3. **Stage III:-** GFR may be as low as 30 or as high as 59. it may have mild or severe loss of kidney function.
4. **Stage IV:-** GFR may be as low as 15 or as high as 29. there severe loss of kidney function.
5. **Stage V:-** GFR is below 15. the kidneys are nearing or at complete failure.



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# *Acute Renal Failure*



# *Acute Renal Failure*

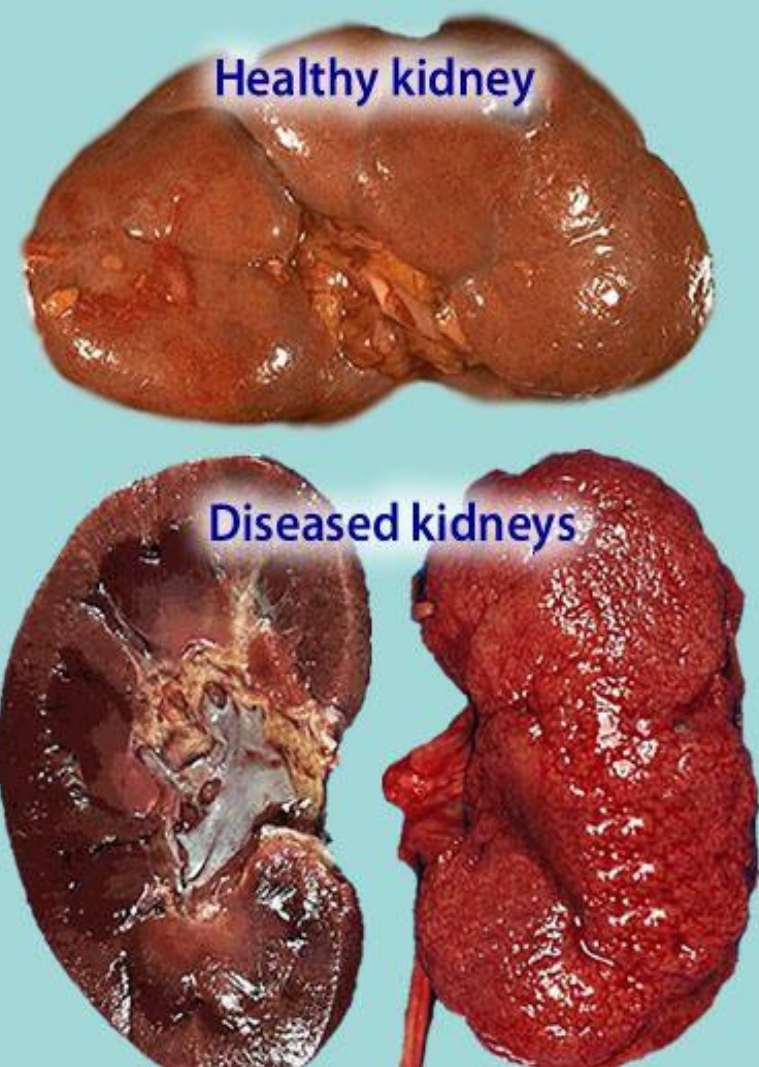
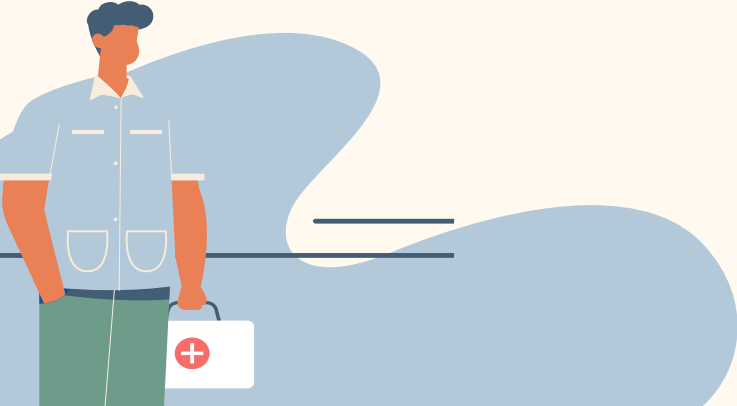
Acute kidney injury is loss of kidney function that develops quickly — over a few hours or days. It can be mild, or severe enough to cause kidney failure.

For some people, acute kidney injury can cause death, or it can cause damage and lead to **Chronic Kidney Disease**.



# *Acute Renal Failure*

ARF is a sudden decrease in kidney function that develops within seven days, as shown by an increase in serum creatinine or a decrease in urine output, or both.



# *Causes of Acute Renal Failure or AKI*

Causes of Acute Renal Failure or AKI are classified as either

1- Prerenal Causes.

2- Intrinsic Renal Causes.

3- Postrenal Causes.



# *Causes of Acute Renal Failure or AKI*

1- Prerenal Causes of AKI due to decreased blood flow to the kidney, include sepsis, dehydration, excessive blood loss, cardiogenic shock, heart failure, cirrhosis, and certain medications.

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# *Causes of Acute Renal Failure or AKI*

2- Intrinsic Renal (due to damage to the kidney itself).

Intrinsic renal causes of AKI include glomerulonephritis, lupus nephritis, acute tubular necrosis, and chemotherapeutic agents.



# *Causes of Acute Renal Failure or AKI*

3- Postrenal causes of AKI due to blockage of urine flow include kidney stones, bladder cancer, neurogenic bladder, enlargement of the prostate, narrowing of the urethra, and certain medications like anticholinergics.



# *Symptoms of Acute Renal Failure or AKI*

AKI occurs when the kidneys suddenly stop filtering waste products from the blood.

The symptoms of AKI can be:

1. swelling of the hands, feet and face (edema).
2. Internal bleeding.
3. Confusion.
4. Coma.
5. Abnormal blood and urine tests.
6. High blood pressure.





## *Chronic Renal Failure (CRF)*

# *Chronic Renal Failure (CRF)*

CRF is a type of long-term kidney disease, defined by the sustained presence of abnormal kidney function and/or abnormal kidney structure.

To meet the criteria for CKD, the abnormalities must be present for at least three months.



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# *Chronic Renal Failure (CRF)*



CKD happens more gradually, early in the course of CKD, patients are usually asymptomatic!

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## *Causes of Chronic Renal Failure (CRF)*

The most common causes of Chronic Renal Failure (CRF) are:

1. High blood sugar (diabetes).
2. High blood pressure.
3. Autoimmune diseases.
4. Polycystic kidney disease.
5. Blocked urinary tract.



# *Symptoms of Chronic Renal Failure (CRF)*

CKD builds slowly with very few symptoms in its early stages.

A patient with CKD may not have any symptoms until kidney function declines to 20% or less. At that stage, these signs may appear:

1. Abnormal blood and urine tests.
2. High blood pressure.
3. Low red blood cell count (anemia).
4. Nausea.
5. Vomiting.
6. Metal taste in mouth.
7. Loss of appetite.
8. Shortness of breath.
9. Numbness and tingling.
10. Confusion.
11. Coma.
12. Easy bruising.
13. Itching.
14. Fatigue.
15. Muscle twitches and cramps.
16. Weak bones that break easily.
17. Swelling of the hands, feet and face (edema).



---

# *Diagnosis of Renal Failure*



# Diagnosis of Renal Failure

A healthcare provider may use a variety of kidney function tests to evaluate kidneys and diagnose kidney failure. If the provider suspects a risk of kidney failure, common tests include:

- **Blood tests.** Blood tests show how well kidneys remove waste from the blood.
- **Urine tests.** Urine tests measure specific substances in pee, such as protein or blood.
- **Imaging tests.** Imaging tests allow a provider to look at the kidneys and the surrounding areas to identify abnormalities or blockages.



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# *Complications of Kidney Failure*



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# *Complications of Kidney Failure*

The kidneys have many different functions in the body. When there have kidney failure, may develop certain complications include:

- ❖ High blood pressure
- ❖ Anemia.
- ❖ Bone disease.
- ❖ Fluid around lungs.
- ❖ Nerve damage.
- ❖ Electrolyte imbalance.



# *Treatment*



# *Treatment*

Kidney failure treatment depends on the cause and severity of the condition.

Healthcare providers can't cure kidney failure, and the disease is life-threatening. But treatment can help to live longer and manage any symptoms or complications.

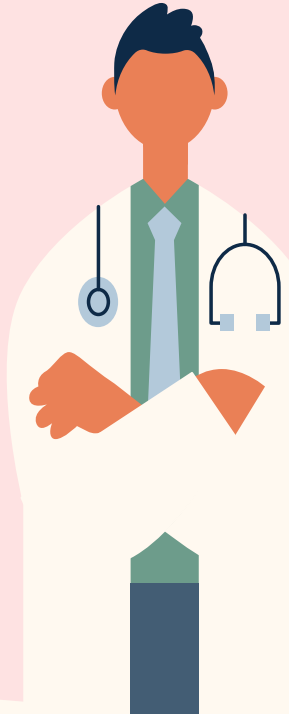


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# Treatment

If the kidneys gradually stop working, a healthcare provider may use a few different methods to track health and maintain kidney function as long as possible. These methods may include:

- ✓ Regular blood tests.
- ✓ Blood pressure checks.
- ✓ Medication.



# Dialysis



**Dialysis** helps patients body filter blood. it can giving the kidneys some relief, so they don't have to work as hard to do their job.

There are two types of dialysis:

- **Hemodialysis:-** a machine regularly cleans blood . Most people with kidney failure get hemodialysis three to four days a week at a hospital or dialysis clinic.
- **Peritoneal dialysis:-** In peritoneal dialysis, a provider attaches a bag with a dialysis solution to a catheter in the abdominal lining. The solution flows from the bag into the abdominal lining, absorbs waste products and extra fluids and drains back into the bag. Sometimes, people can receive peritoneal dialysis at home.

# Kidney Transplant

A surgeon places a healthy kidney in patient body during a **kidney transplant** to take over for the damaged kidney.

The healthy kidney (donor organ) may come from a deceased donor or a living donor.

Person can live well with one healthy kidney. If he receive a kidney transplant, must be on medications for the rest of life to prevent any harm to the transplanted kidney.



# *Prevention*





# Prevention

Though kidney failure and CKD aren't reversible, but can take steps to help preserve kidney function. Healthy habits and routines may slow down how quickly kidneys lose their ability to function.

In CKD or kidney failure, it's a good idea to:

- Monitor kidney function.
- Keep blood sugar levels in the normal range if have diabetes.
- Keep blood pressure levels in a normal range.
- Avoid using tobacco products.
- Avoid foods high in potassium and sodium.

*Any Question ?*





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*Thanks For Attention*





نهاية الحقبة التعليمية  
الخاصة بمقرر الطب الباطني الجراحي  
للفصل الاول / المرحلة الثانية  
الدراستين الصباحية والمسائية