School of Medicine
First semester 1399-1400

Course Title: Cardiovascular Anatomy
Audience: First semester medical students
Number of units: Theory 1 units, practical 0.5 unit
Comprehensive Question Answer Hours: Free
Lesson presentation time: Tuesdays 8-10
Instructor: Dr. Ali Ghanbari
Prerequisite: Introduction to Anatomical Sciences
Number of students: 60

General Objective of the course: The student should learn the anatomical structure of .the various components of the cardiovascular system

General objectives of the sessions:
Session 1: Students get acquainted with the generalities of ossification of the chest, -1 ribs and vertebrae of the spine

Session 2: Familiarity of students with sternum bone, joint division, chest joints and clinical tips related to chest ossification and its joints

Session 3: Familiarity of students with chest wall muscles, including: respiratory and adjacent muscles and diaphragm

Session 4: Familiarity of students with the arteries and nerves of the chest wall

Session 5: Familiarity of students with mediastinum division and heart structure

Session 6: Familiarity of students with the conduction system of the heart, pericardium, cardiac networks, pericardial sinuses and superficial anatomy of the heart and the sound of heart valves

Session 7: Students get acquainted with the arteries of the body

Session 8: Familiarity of students with body veins

Specific objectives by general objectives of each session:

The general purpose of the first session: to acquaint students with the generalities of ossification of the chest, ribs and vertebrae of the spine.
Special Objectives of the first session: Familiarity of students with the division of body bones, different parts of a typical vertebra, anatomical differences of the vertebrae of the neck, chest and back, anatomical structure and rib division, clinical points of chest ossification.

General Objective of the second session: Familiarity of students with sternum bone, joint division, chest joints and clinical tips related to chest ossification and its joints
Special Objectives of the second session: Familiarity of students with the anatomical structure of the sternum bone and how the ribs connect to the sternum, generalities related to the joints of the body, types of joints in the chest shelving, clinical points related to the ribs, intercostal spaces, spine And chest joints.

The general purpose of the third session: to acquaint students with the muscles of the chest wall, including: respiratory and adjacent muscles and diaphragm.
Special Objectives of the third session: Students' familiarity with body plates, intercostal spaces, respiratory muscles of the chest wall, especially the intercostal muscles, muscles adjacent to the chest, anatomical structure of the diaphragm, diaphragm holes and elements passing through them, respiratory muscle function , Hernias related to the diaphragm holes.

The general purpose of the fourth session: to acquaint students with the arteries and nerves of the chest wall
Special Objectives of the Fourth Session: Familiarity of students with the nourishing arteries of the chest wall, including the axillary arteries, subclavian, thoracic aorta, inner thorax, motor nerves of the chest wall and diaphragm, and sensory nerves of the chest wall, intercostal nerves And the phrenic nerve, the azygous and hemi-azygous veins, and the thoracic duct.

The general purpose of the fifth session: to acquaint students with the division of the mediastinum and the structure of the heart

Special Objectives of the Fifth Session: Familiarity of students with the mediastinum and its division, contents of the upper and lower mediastinum, surfaces and sides of the heart, elements of the inner space of the right atrium, right ventricle, left atrium and left ventricle, heart valve structure, coronary artery branches , Cardiac veins.

The general purpose of the sixth session: to acquaint students with the conduction system of the heart, pericardium, cardiac networks, pericardial sinuses and superficial anatomy of the heart and heart valve sound.
Special Objectives of the Sixth Session: Familiarity of students with atrial and ventricular sinus nodes, cardiac pericardial layers, superficial and deep networks of the heart, oblique and transverse pericardial sinuses, superficial anatomy of the heart, where the heart valves are heard.

The general purpose of the seventh session: to acquaint students with the arteries of

the body

Special Objectives of the Seventh Session: Familiarity of students with the division of the aorta, ascending aortic branches, aortic arch branches, thoracic aortic branches, abdominal aortic branches.

The general purpose of the eighth session: to acquaint students with the veins of the body

Special Objectives of the Eighth Session: Students' Familiarization with Vena cava suprior, Vena cava Inferior, Upper and Lower Limb Veins, Superficial Veins of the Limbs, Portal Vein

At the end the student should be able to :

1- Explain the different parts of a typical nut. Know the differences between the cervical, thoracic and lumbar vertebrae. Explain the different parts of a rib and know where the ribs are articulated to the vertebrae .
2- Explain the different parts of the sternum. Know Lewis angle and its uses in the clinic. Know the location of the pleural effusion in the intercostal space. The vertebral boundaries show the important elements from the thorny vertebrae of the vertebrae. Show the drainage site of lymph fluid from the patient's chest .

3- Explain the respiratory muscles, especially the intercostal muscles. Explain the different parts of the diaphragm and its connections. Know the function of the respiratory muscles. Recognize diaphragm holes and elements passing through it. Know the types of hernias .

4- Explain the origin of thoracic wall arteries. Know the different branches of the internal thoracic artery. Explain the intercostal nerves. Recognize the roots, pathways, and areas nourished by the phrenic nerve. Explain the path of the azygous and hemi-azygous veins .

5- Explain the mediastinum and its divisions. Recognize the contents of the upper, posterior, middle, and anterior mediastinum. Know the levels and threads of the heart. Know the internal elements of the right atrium. Explain ventricular atrial valves and tray valves. Describe the right and left coronary arteries and their branches .

6- Explain the position and function of atrial and ventricular sinus nodes. Recognize the layers of the pericardium. Know the superficial anatomy of the heart. Show the location of the heart valve sounds from the chest .

7- Explain the aorta and its branches. Know the branches of the aortic arch. Recognize the arteries that feed the upper extremities. Destroy the branches of the thoracic aorta. Know the branches of the abdominal aorta and where they feed. Name the arteries of the lower extremities .

8- Explain the superior vena cava and inferior vena cava and its constituent branches. Recognize the superficial veins of the limbs. Describe the portal vein .

References :

Grays anatomy for students (anatomy of the trunk, limb, and anatomy of the head and neck)

Educational tools:

On-line and off-line virtual education

Assessment and evaluation of the test

Considered time For answering	Date	Share of total score (in percent)	Method	Test
//////////////////	End of each session	6	Short answer, Multi-choice or painting	**Homework**
40 min	End of the term	14	Multi-choice	**Final Exam**

Classroom roles and student expectations:

Since this semester is presented virtually, students are required to upload and read all the content uploaded in the Navid system, as well as to prepare and submit homework related to the course on time.

Name of God

Theory program of cardiovascular anatomy (Total credit: 1)

First semester 1399-1400

Instructor: Dr. Ali Ghanbari

Final exam 99 /11

Topic	Date	Days

Introduction, Terminology	/۶/۲۶ 9۹	Tuesday
Continuation of terminology	9۹/۷/۳	Tuesday
Chest ossification (ribs and vertebrae)	9۹/7/۱۱	Tuesday
Chest ossification (sternum, joints, clinical tips)	9۹/7/۱۸	Tuesday
Chest wall muscles (respiratory and adjacent muscles, diaphragm)	9۹/7/۲۵	Tuesday
Chest wall arteries and nerves	9۹/8/۲	Tuesday
Mediastinum, heart (external structure and internal space of heart cavities)	9۹/8/۹	Tuesday
Heart (conduction system of heart, pericardium, superficial anatomy and sound of valves)	9۹/8/۱۶	Tuesday
Circulatory system (arteries of the body)	/۸/۲۳ 9۹	Tuesday
Circulatory system (body veins)	/۸/۳۰ 9۹	Tuesday

Name of God

Practical program of cardiovascular anatomy (Total credit: 0.5)

First semester 1399-1400

Instructor: Dr. Ali Ghanbari

Final exam 99 /11

Topics	Date	Class number
Dissection of the chest wall	9۹/7/۲۵	1
Dissection of the mediastinum	9۹/8/۲	2

Dissection of the heart	٩٩/8/٩	3
Dissection of the arteries of the head and neck and upper limb	٩٩/8/١٦	4
Dissection of the arteries of the trunk and lower limb	٩٩/٨/٢٣	5
Dissection of the veins of the head and neck and upper limb	٩٩/٨/٣٠	6
Dissection of the veins of the trunk and lower limb	٩٩/٩/٧	7