Anterior Thorax Muscles

The anterior thorax muscles include the pectoralis minor, pectoralis major, serratus anterior, intercostals, transversus thoracis, subcostales and diaphragm. The majority of these muscles are vitally important for respiratory function.



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Characteristics

Pectoralis Minor
Pecks Miner
The pectoralis minor is a thin muscle located beneath the pectoralis major in the anterior chest. It originates from the anterior surfaces of the third, fourth and fifth ribs and inserts on the coracoid process of the scapula. It is innervated by the medial pectoral nerve. The pectoralis minor acts to depress the shoulder and stabilize the scapula.

Pectoralis Major
Pecks Major
The pectoralis major is a thick, fan-shaped muscle located in the anterior chest. It originates from the medial half of the clavicle, the anterior surface of the sternum, the first six costal cartilages and the aponeurosis of the external oblique. It inserts into the bicipital groove of the humerus. The pectoralis major is innervated by both the medial and lateral pectoral nerves. In comparison, the pectoralis minor is only innervated by the medial pectoral nerve. The function of the pectoralis major is adduction, medial rotation and flexion of the humerus at the shoulder joint.

Serratus Anterior
Serrated-knife Ant-eater
The serratus anterior originates from ribs 1-8 along the midaxillary line, and inserts posteriorly on the medial margin of the scapula. It is innervated by the long thoracic nerve. The serratus anterior acts to protract and stabilize the scapula. A lesion of the long thoracic nerve will cause winging of the scapula.

Intercostals (External, Internal, Innermost)
In-ribs
The intercostal muscles are three flat muscles found in each intercostal space between adjacent ribs. The external intercostals are the most superficial, the internal intercostals are in the middle, and the innermost intercostals are the deepest of the three muscle layers. The intercostals are innervated by related intercostal nerves. The external intercostals move the ribs superiorly, and therefore they assist during inspiration. The internal and innermost intercostals move the ribs inferiorly, so they are the most active during forced expiration.

Subcostales
Sub-ribs
The subcostales originate from the internal surface of the lower ribs and insert on the internal surface of the second or third rib below. They help to depress the ribs during forced expiration.

Transversus Thoracis
Train-versus Thor-axe
The transversus thoracis originates from the inferior margins of the costal cartilages of the second to sixth ribs, and inserts on the inferior aspect of the sternum, xiphoid process and costal cartilages of ribs 4-7. The transversus thoracis acts to depress the ribs. It is innervated by the intercostal nerves.

Diaphragm
Diaphragm-trampoline
The diaphragm is a thin musculotendinous structure that separates the thoracic cavity from the abdominal cavity. It attaches to the xiphoid process, ribs 6-12 bilaterally, and the bodies and intervertebral discs of L1-3. The diaphragm is innervated by the phrenic nerve (“C3, 4, 5 keeps the diaphragm

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alive”). The diaphragm is the most important muscle of respiration, and if it becomes fatigued or paralyzed by a pathologic process, then respiratory failure will quickly follow.

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