The intercostal nerves are part of the somatic nervous system, and arise from the anterior rami of the thoracic spinal nerves from T1 to T11. The intercostal nerves are distributed chiefly to the thoracic pleura and abdominal peritoneum and differ from the anterior rami of the other spinal nerves in that each pursues an independent course without plexus formation.

The first two nerves supply fibers to the upper limb in addition to their thoracic branches; the next four are limited in their distribution to the walls of the thorax; the lower five supply the walls of the thorax and abdomen. The 7th intercostal nerve terminates at the xyphoid process, at the lower end of the sternum. The 10th intercostal nerve terminates at the navel. The twelfth (subcostal) thoracic is distributed to the abdominal wall and groin.

Unlike the nerves from the autonomic nervous system that innervate the visceral pleura of the thoracic cavity, the intercostal nerves arise from the somatic nervous system. This enables them to control the contraction of muscles, as well as provide specific sensory information regarding the skin and parietal pleura. This explains why damage to the internal wall of the thoracic cavity can be felt as a sharp pain localized in the injured region. Damage to the visceral pleura is experienced as an un-localized ache.