

# [Overview of bones in the human body](https://assignbuster.com/overview-of-bones-in-the-human-body/)

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| The skull is the top of the skeleton and consists of the cranium and mandible. The cranial part  of the skull is composed of separate bones united at immobile joints called sutures. These sutures  are held by sutural ligaments. The skull is made of compact bone, covered with periosteum, and  a layer of diploe. The mandible is connected to the cranium by a synovial joint called the  temporomandibular joint. The cranium houses the brain and supports the face. The number of  bones in the skull totals 22. The skull bones can be divided into two groups. The bones of the  cranium and facial. The five bones of the cranium consist of one frontal, two parietal, one  occipital, two temporal, one sphenoid, and one ethmoid bone. The facial bones consist of two  zygomatic bones, two maxillae, two nasal bones, two lacrimal bones, one vomer, two palatine  bones, two Inferior conchae, and one mandible.  In the thoracic cage we have the lateral ribs, costal cartilages, dorsal thoracic  vertebrae, sternum, and the xiphoid. The thoracic cavity protects the heart and lungs. This cage  also supports the shoulder girdles and upper limbs and attached you will find the neck, chest, and  Skeletons and Bones  PG 2.  muscles. The sternum or “ breastbone” has three fused bones. We have 12 ribs total. The ribs are  either floating ribs or true ribs. The true ribs 1-7 are attached to the sternum. Ribs 8-10 are  considered false ribs. The ribs 11-12 are considered floating ribs and do not attach to the  sternum. The scapula is a flat, triangular bone which articulates laterally with the clavicle and  with the humerous. We have two identical pairs. The clavicles are a pair of long bones that  connect the scapula to the sternum. The clavicles are cylindrical bones around 6 inches long.  They are located in the thoracic region superior and anterior to the first rib. Each clavicle runs  transversely and forms a joint with the sternum on its medial end and the scapula on its lateral  end. (Bones : structure and mechanics, Pg. 47) The clavicles, along with the scapulae, form  the pectoral girdle that attaches the bones of the arm to the trunk. The sternoclavicular joints are  the only bony attachments between the pectoral girdles and the bones of the axial skeleton.  Several muscles of the neck and shoulder also attach to the clavicle, including the pectoralis  major, sternocleidomastoid, trapezius, and deltoid.  Thevertebra columnconsists of 33 vertebrae. The first 24 vertebra are articulating  vertebrae, seven cervical, 12 thoracic, five lumbar, and the lower nine are fused. Then following  we have five fused in thesacrumand four in the coccyx. The spinal canal protects the spinal  cord. The human vertebral column is the backbone or spine, consisting of thirty three in total.  The vertebra are small bones forming the backbone and they have a hole through which the  spinal cord passes. The ilium is the uppermost and largest part of the hip bone. This bone is  wide, flat, and provides attachment points.  The curved ischium forms the lower and back part of  the hip bone. This bone is below the ilium and behind the pubis. The superior portion of this  Skeleton and Bones   PG 3.  bone forms approximately one third of the acetabulum. The body rests on these bones while in  sitting position. The pubic bone is the ventral and anterior of the three bones which make up half  of the pelvis. The pubic bone is covered the mons pubis. There is a superior ramus and an  inferior ramus noted. The pubis is the lowest and most anterior portion of the hip bones of the  pelvis. Thepubicsymphysis, is where the two hip bones of thepelvisare fused together. The  humerus is the upper arm long bone, it extends from shoulder to elbow. The proximal end has a  smooth round head that articulates with scapula.  The cylindrical shaped humerus has two rounded processes called the greater and lesser  tubercles. The distal end of the humerus has two articulating surfaces, the trochlea which  articulates with the ulna and the capitulum, which articulates with the radius at the elbow. The  ulnais a long bone located on the opposite side of the forearm from the thumb. It attaches to the  humerus on the larger end and joins with the carpalbonesof the hand at its smaller end. It lies  medially and parallel to theradius. The forearm has two largebones, theradiusand the ulna, of  which theradiusis the largerbone. The radius is located on the lateral side of the forearm  between the elbow and the wrist joints.  The pectoral girdle is the skeletal framework that provides attachment for the scapula’s  and clavicles. The Pelvic Girdle is composed of 2 hip bones and sacrum. The talus bone,  astragalus, or ankle bone is one of the group of foot bones known as the tarsus. The tarsus forms  the lower part of the ankle through its articulations with the lateral and medial malleoli of the  two bones of the lower leg, the tibia and fibula. The tarsus transmits the entire weight of the body  to the foot. The calcaneus or heel bone is a bone of the tarsus of the foot which constitutes the  Skeleton and Bones  PG 4.  heel. The metatarsal bones, or metatarsus are five long bones in the foot, located between the  tarsal bones of the hind- and mid-foot and the phalanges of the toes. (Fundamentals of Anatomy  &Physiology) The metatarsal bones are numbered from the medial side: the first, second, third,  fourth, and fifth metatarsal. A tarsal is considered one of the seven bones of the tarsus. The  metacarpals are long bones within the hand that are connected to the carpals, or wrist bones, and  to thephalanges, or finger bones. The tops of the metacarpals form the knuckles where they join  to the wrist. On the palm side, they are covered with connective tissue. There are eight small  carpel bones that sit between the distal ends of the radius and ulna. They have fivemetacarpals.  The size of these metacarpal’s vary and have different shapes. The phalanges are digital long  bones found in the hands and feet. There are generally three noted, distal, middle, and proximal  for each digit. The only exception the thumbs and large toes.  The fibula is a leg bone located on the lateral side of the tibia, with which it is connected  above and below. It is the smaller of the two lower leg bones and the slenderest of all the long  bones. The tibia is the larger and stronger of the two lower leg bones and it connects the knee  with the ankle bones. The tibia is found on the medial side of the leg next to the fibula. It is the  second largest bone in the human body next to the femur. Thepatellais a circular-triangular  bonewhich articulates with the femur and covers the anterior articular surface of the knee joint.  The femur articulates with theacetabulumin the pelvic bone forming the hip joint, while the  distal part of the femur articulates with the tibia and patella forming the knee joint. The femur is  the strongest bone in the body.  1. Briefly identify and discuss the microscopic structures of compact bone  Skeleton and Bones   PG 5.  Compact bone contains rigid organs that form parts of the endoskeleton. Compact bone  assist the body to move, supports it, and protects organs. Compact bone produces red and white  blood cells and store minerals. The cortical bone is one of the two types of osseous tissue that  form bones. Cortical bone is often most prominent in the humanfemurandtibia. The outer layer  is dense and forms the shaft of the long bones. Compact bone is made up of concentric layers of  mineral deposits surrounding a central opening. The cylindrical shaped osteon is the main  structure that makes the outer layer of bones hard. They typically run parallel.  The cortical bone  is considered approximately 80% of mature bone.  Each unit is generally made up of the  Haversian canal, Volkmann’s canals, osteocytes, and canaluli’s. (Bones structure and mechanics,  Pg. 212) Compact bone contains acentral canal, called the Haversian canal, along with  concentric layers of bone called interstitial lamellae.  The Haversian canal is actually surrounded with rings of lamellae. Lamellae are made  up of bone matrix, collagenfibers, and mineral crystals. Interstitial lamellae are contained in the  spaces between osteons. Cancellous or spongy bonehas less strength than compact bone and  within the Haversian canal is composed of a layer ofendosteum. This connective tissue is rich in  nerve fibers and blood vessels. Blood cells within the canal carry nutrients and waste to and  away from the outer layer of the bone. These systems of canals and lamellae are also called  osteons. Spongy boneis hollow and appears like a sponge. They contain thin spicules are known  astrabeculae. In between these cavities you will findred or yellow bone. Volkmann’s canals are  small channels in the bone that transmit blood vessels from the periosteum into the bone and  these canals provide energy and nourish osteons. Trabecular bone is another name for spongy  Skeleton and Bones   PG 6.  bone and can be found at the ends of long bones. (Haversian system, Pg. 12)  Long bonesis most of the appendicular skeleton. The ends of the long bones are epiphysis,  its shaft is called the diaphysis. The surroundings or periphery of the epiphysis and diaphysis are  made up of compact bone. In between long bones are epiphyseal plates and this is the region  where bone growth occurs. The long bone is covered of the fibrous sheath called periosteum.  The periosteum protects the bone and allows it to attach to other bones. |