Support & Movement Cheat Sheet

by Abdul Manan (Abdul Manan) via cheatography.com/204478/cs/43594/

Human Skeleton

Human have around 300 bones at birth

206 bones when adult

18% of total body weight

Bone

Along bone has 3 distinct regions Epiphysis,Diaphysis and Metaphysis

3 types of cells,Osteoblast,Osteoclast & Osteocytes

Cartilage

Only one type of cells chondrocytes

3 types of cartilage,Hyaline,-Elastic & Fibrocartilage

Axial Skeleton

Consists of skull, vertebral column,sternum and ribs

Skull parts; Cranium, facial and Ear ossicles

Cranium 8 bones

Facial 14 bones

Ear ossicles 6 bones

1 hyoid bone

In Cranium,2 paired bones named Parietal and Temporal bones

In Cranium,4 unpaired bones named Sphenoid, Occipital, Frontal and Ethmoid

In Facial bones, 6 paired bones named Palatine,Maxilla,Lacrimal,Nasal,Inferior concha and Zygomatic

In Facial bones,2 unpaired bones named Vomer & Mandible

In Ear ossicles,3 paired bones named Malleus,Incus & Stapes

Axial Skeleton (cont)

Vertebral column parts; Cervical, Thoracic, Lumber & Pelvic

Cervical - 07 vertebras

Thoracic - 12 vertebras

Lumber - 05 vertebras

Pelvic -09 vertebras fusion into 2 named Sacrum 05 vertebras & Coccyx 04 vertebras

Total Vertebras no: 26

Ribs types True,False & Floating

True ribs number 14 (07 pairs)

False ribs number 06 (03 pairs)

Floating ribs number 04 (02 pairs)

Total bones in Axial Skeleton Skull-29, Vertebral column -26,Sternum-01 and Ribs-24 = 80 bones

Appendicular Skeleton

consists of 126 bones

Divisions:Pectoral girdle+Fore limb& Pelvic girdle & Lower limb

Total no of bones associated with Pectoral girdle=64 bones (both sides)

2-Clavicle,2-scupula in pectoral girdle both sides(Total 4)

Anterior limb(Arm) bones:2-humerus,2-radius,2-ulna,16-carpals,10-metacarpals & 28 phalanges in both both limbs

Total no of bones associated with Pelvic girdle=62

2-coxal bones, posterior limbs include,2-femur,2-tibia,2-fibula,-2-patella,14-tarsals,10-metatarsals & 28 phalanges

Joints

Site 2 or more bones meet

Approximately 360 joints in our body

3 types:Fibrous, Cartilaginous & Synovial

Different types of synovial joints present in our body like Hinge,-Pivot,Ball & Socket,Condyloid, Gliding Joint

Disorders of Skeleton

Mainly: Disc slip, Spondylosis, Sciatica & Arthritis

Muscles,it's types & Structure

Half of the human body mass

3 types of muscles: Skeletal, Cardiac &Smooth

Muscle fibre diameter 10-100um

Myofibrils diameter 1-2um

Myosin filament is thick,16nm in diameter

Actin filament is thin,7-8nm in diameter

The Sliding Filament Model of muscle contraction proposed by Hugh Huxley & Jean Hanson in 1954

Energy of muscle contraction

ATP & Phosphocreatine

ATP: Immediate source of energy for muscle contraction

Energy of muscle contraction (cont)

Phosphocreatine: reserve of high-energy phosphate comoound.Of the total energy expended in muscle contraction,only 35% is utilized for the performance of work: remaining is liberated in the form of heat,which is employed to maintain body temperature

Muscle Problems

Cramps,Muscle Fatigue & Tetany

Muscle cramps often occur after exercise or at night,lasting a few seconds to several minutes

By **Abdul Manan** (Abdul Manan)
cheatography.com/abdul-manan/

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