

Upper Extremity

CHAPTER 9

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NEW TERMINOLOGY

Combining Form	Meaning	Example	Meaning of New Term
Acr/o	Extremities	Acroanesthesia	Absence of sensation in the extremities
Ankyl/o	Stiff joint	Ankylosis	Abnormal condition of a stiff joint
Arthr/o	Joint	Arthrocentesis	Surgical puncture of a joint
Articul/o		Articular	Pertaining to a joint
Burs/o	Bursa, sac	Bursitis	Inflammation of a bursa
Carp/o	Carpus	Carpectomy	Excision or surgical removal of a carpus ²

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NEW TERMINOLOGY

Combining Form	Meaning	Example	Meaning of New Term
Cervic/o	Neck	Cervicodynia	Pain of the neck
Chondr/o	Cartilage	Chondrodysplasia	Bad, painful, or difficult formation or growth of cartilage
Cost/o	Ribs	Costochondritis	Inflammation of the ribs and cartilage
Crani/o	Cranium	Craniocerebral	Pertaining to the cranium and brain
Fasci/o	Fascia	Fasciodesis	Binding or surgical fixation of a fascia
Humer/o	Humerus	Humeral	Pertaining to the humerus ³

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NEW TERMINOLOGY			
Combining Form	Meaning	Example	Meaning of New Term
Kinesi/o	Movement	Kinesiology	Study of movement
Kyph/o	Hump	Kyphosis	Abnormal condition of a hump
Lamin/o	Lamina	Laminectomy	Excision or surgical removal of a lamina
Lord/o	Bent backward	Lordoscoliosis	Abnormal condition of crookedness and backward bend
Lumb/o	Lower back	Lumbodynia	Pain in the lower back
Menisc/o	Meniscus	Meniscectomy	Excision or surgical removal of a meniscus

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NEW TERMINOLOGY			
Combining Form	Meaning	Example	Meaning of New Term
Metacarp/o	Metacarpus	Metacarpectomy	Excision or surgical removal of a metacarpus
Muscul/o	Muscle	Musculoskeletal	Pertaining to the muscles and skeleton
My/o		Myocardial	Pertaining to heart muscle
Myel/o	Spinal cord, bone marrow	Myeloplegia	Paralysis of the spinal cord
Orth/o	Straight	Orthopnea	Breathing in the straight position

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NEW TERMINOLOGY			
Combining Form	Meaning	Example	Meaning of New Term
Oste/o	Bone	Osteolytic	Pertaining to the destruction of bone
Phalang/o	Phalanges	Phalangitis	Inflammation of the phalanges
Radi/o	Radius	Radioulnar	Pertaining to the radius and ulna
Scoli/o	Crooked, bent	Scolimeter	Measuring instrument for crookedness or bend
Spondyl/o	Vertebrae	Spondylomalacia	Softening of a vertebrae
Vertebr/o		Vertebroplasty	Surgical repair of a vertebrae

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NEW TERMINOLOGY

Combining Form	Meaning	Example	Meaning of New Term
Stern/o	Sternum	Sternocostal	Pertaining to the sternum and ribs
Sthen/o	Strength	Myasthenia	Condition of absence of muscle strength
Synov/o	Synovial membrane	Synovectomy	Surgical removal of a synovial membrane
Synovi/o		Synovioma	Tumor of a synovial membrane

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NEW TERMINOLOGY

Combining Form	Meaning	Example	Meaning of New Term
Ten/o	Tendon	Tenodynia	Pain of a tendon
Tend/o		Tendotome	Cutting instrument for a tendon
Tendin/o		Tendinous	Pertaining to a tendon
Thorac/o	Thorax	Thoracolumbar	Pertaining to the thorax and lower back
Uln/o	Ulna	Ulnocarpal	Pertaining to the ulna and carpus

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BONY ANATOMY

- ✦ Shoulder Girdle
 - + Clavicle
 - + Scapula
 - + Humerus

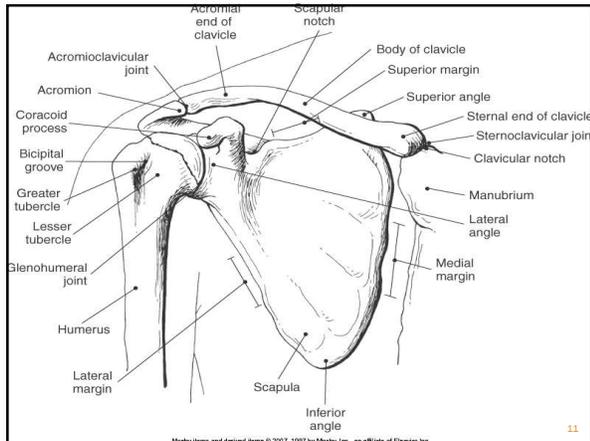
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CLAVICLE

- ✘ Connects upper limb to body
- ✘ Provides attachments for muscles/ligaments
- ✘ Long, slender "S" shaped
- ✘ Extends transversely from sternum to scapula

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SCAPULA

- ✘ Triangular-shaped
- ✘ Flat bone
- ✘ Four projections provide attachment sites
 - +Muscles
 - +Ligaments

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HUMERUS

- ✗ Long bone
- ✗ Articulates with:
 - + Scapula superiorly
 - + Radius and Ulna inferiorly
- ✗ Proximal end
 - + Head of humerus

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BURSA

- ✗ Fluid filled
- ✗ Cushions shoulder joint:
 - + Tendons
 - + Ligaments
- ✗ Reduces friction

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ELBOW

- ✗ Complex hinge-pivot joint
- ✗ Articulations of:
 - + Humerus
 - + Radius
 - + Ulna

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FOREARM

- ✗ Radius
 - + Long & slender
 - + Lateral
- ✗ Ulnar
 - + Slightly longer than radius
 - ✗ Proximally associated with olecranon
 - + Medial

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WRIST & HAND

- ✗ 8 carpal bones
- ✗ 5 metacarpal bones
- ✗ 14 phalanges

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ARTERIAL SUPPLY

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✘ Aortic Arch Branches

1st - Innominate/Brachiocephalic artery

- ✘ Bifurcates into right Subclavian and Rt. CCA
- ✘ Right Subclavian artery
 - ✘ Arises from the innominate artery laterally after traveling cephalad for 4-5 cm
- ✘ Right Common Carotid Artery
 - ✘ Arises from the innominate artery coursing proximally towards the brain

2nd - Left Common Carotid Artery

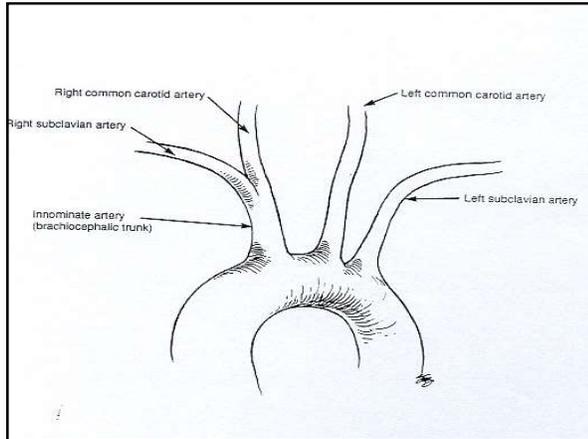
- ✘ Arises directly from the transverse aortic arch

3rd - Left Subclavian Artery

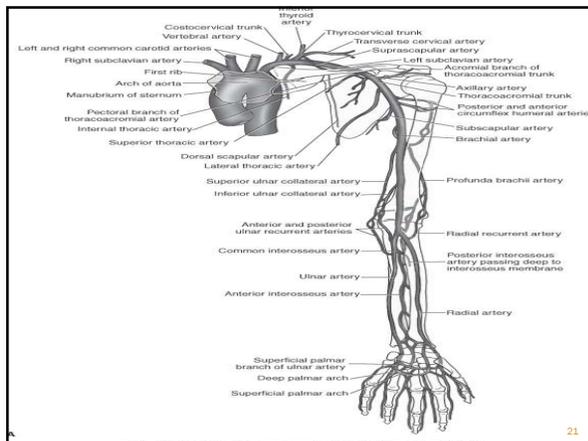
- ✘ Arises directly from the transverse aortic arch

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SUBCLAVIAN

- ✗ Arches above clavicle
- ✗ Travels laterally and downward to the outer border of the first rib
- ✗ Important branches:
 - + Vertebral
 - + Thyrocervical
 - + Internal thoracic
 - + Costocervical
 - + Internal Mammary (Commonly used for coronary artery bypass)

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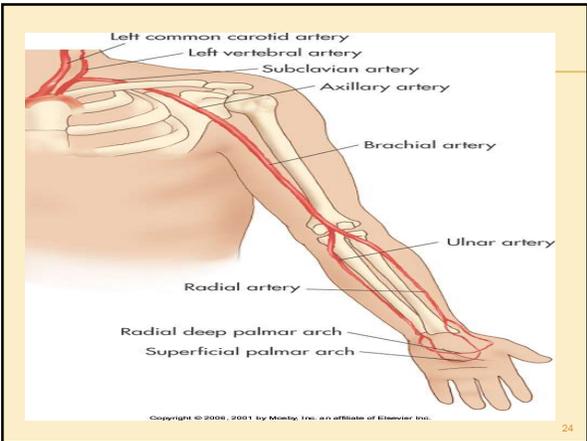
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AXILLARY

- ✗ A continuation of the subclavian artery
- ✗ Branches:
 - + Superior Thoracic
 - + Lateral Thoracic
 - + Anterior Circumflex Humeral
 - + Thoraco-acromial
 - + Subscapular
 - + Posterior Circumflex Humeral

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BRACHIAL

- ✘ Continuation of the Axillary artery
- ✘ Divides into the radial and ulnar arteries approximately 1 cm distal to the elbow joint

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RADIAL

- ✘ Smaller of the terminal branches of the brachial artery
- ✘ Descends along the lateral aspect of the forearm
- ✘ Helps form the superficial palmar arch with one of its branches
- ✘ Crosses medially to form the deep palmar arch with the deep branch of the ulnar artery (At the level of the hand)
- ✘ Terminates in the deep palmar arch

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ULNAR

- ✘ Larger of the terminal branches of the brachial artery
- ✘ Descends along the medial aspect of the forearm
- ✘ Gives off a branch to form the deep palmar arch
- ✘ Terminates in the superficial palmar arch (At the level of the hand)

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PALMER ARCH

- ✘ **Superficial** – anastomosis formed primarily by the ulnar artery
- ✘ **Deep** – formed by the anastomosis of the distal segment of the radial artery with the deep palmar branch of the ulnar artery
- ✘ Approximately 1/3 of the superficial palmar arches are formed by the ulnar alone
- ✘ 1/3 are completed by a branch of the radial
- ✘ 1/3 are completed by other branches
 - + Primarily the medial artery distal segment of the ulnar artery
 - + Radial artery branch

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DIGITAL

- ✘ Arise from the palmar arches
- ✘ Each palmar digital artery had two dorsal branches anastomosing with the dorsal digital arteries
 - + Lateral branch
 - + Medial branch

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VENOUS RETURN

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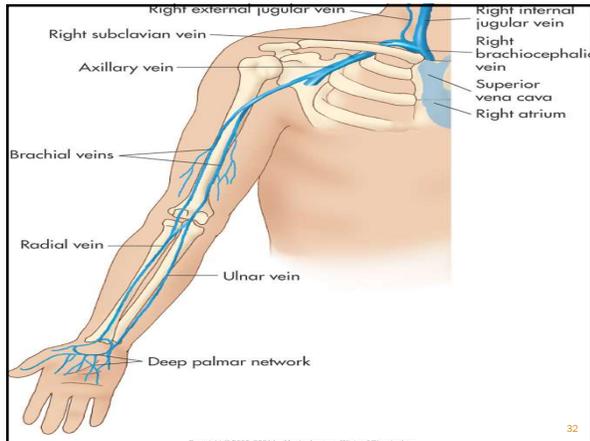
VENOUS SYSTEM DIVIDED INTO 2 SYSTEMS:

- ✘ Deep system
- ✘ Superficial system

We will begin with the hand and work up the arm
(Venous blood travels cephalad in the arm)

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DEEP VEINS

- ✘ **Palmar Arch**
 - + Deep Digital Veins drain into Palmar Arch
 - + Palmar Arch drains into:
 - ✘ Radial Veins
 - ✘ Ulnar Veins
 - ✘ **Radial Veins**
 - + Paired veins on the lateral aspect of forearm
 - ✘ **Ulnar Veins**
 - + Paired veins on the medial aspect of forearm
- *** Radial and Ulnar veins are venae comitantes ***

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BRACHIAL

- × Formed by:
 - + Radial Vein
 - + Ulnar Vein
- × Paired veins that usually begin near the antecubital fossa
- * In some individuals the brachial vein may split into 2 separate trunks

*** Brachial veins are venae comitantes ***

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AXILLARY

- × Form by:
 - + Brachial Vein
 - + Basilic Vein
 - × A superficial vein along the medial aspect
- × Usually formed near the armpit

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SUBCLAVIAN

- × Formed by:
 - + Axillary Vein
 - + Cephalic Vein
 - × A superficial vein along the lateral aspect
- × Begins at the lateral border of the 1st rib and extends medially
- × Just below the clavicle level

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INNOMINATE

- ✗ Also known as Brachiocephalic Vein
- ✗ Formed by:
 - + Subclavian Vein
 - + Internal Jugular
 - ✗ Descends the neck anterior and lateral to the Carotid Artery
- ✗ Begins usually at the level of the clavicle

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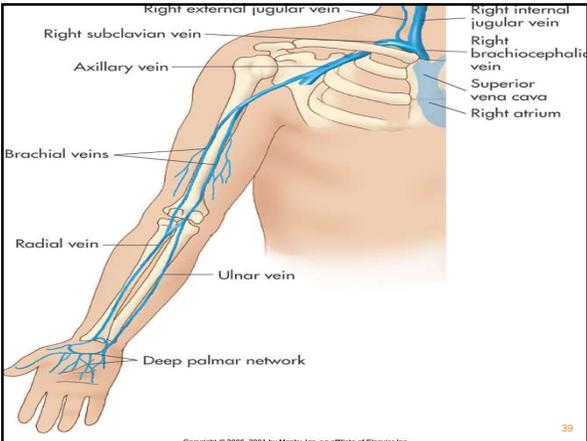
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SUPERIOR VENA CAVA

- ✗ Returns blood to the heart from the superior portion of the body
- + Formed by the junction of the innominate veins (Both Right and Left Innominate)
- + Begins near the sternum and ends in the superior portion of the right atrium

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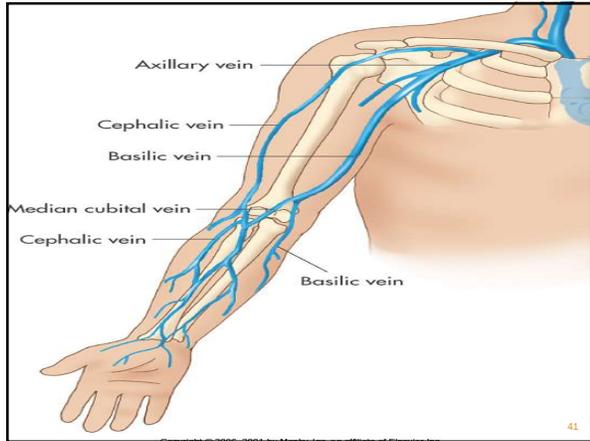


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SUPERFICIAL VEINS

- ✘ **Dorsal Digital Veins**
 - + Drain blood from the fingers
 - + Pass along the sides of the fingers
 - + Unite into 3 dorsal metacarpal veins

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BASILIC

- ✘ **Formed by:**
 - + Digital veins on the medial aspect of the forearm
- ✘ **Courses medially up the arm and joins the Brachial Veins to become the Axillary Vein**

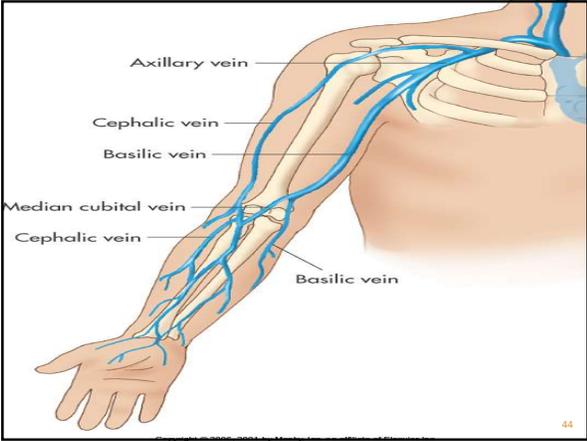
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CEPHALIC

- ✦ Formed by:
 - + Digital veins on the lateral aspect of the forearm
- ✦ Courses laterally up the arm and joins the Axillary Vein
- * Median cubital Vein - Connects the Basilic and Cephalic Veins at the antecubital fossa

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