



Joints and Movements

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Log

- 20-May-2018: Initiated translation from some slides I had (from Adv. Top Biosignal II)
- 03-May-2018: Added some slides on hand anatomy



ANATOMY

Hand anatomy

Bones of human hand and wrist

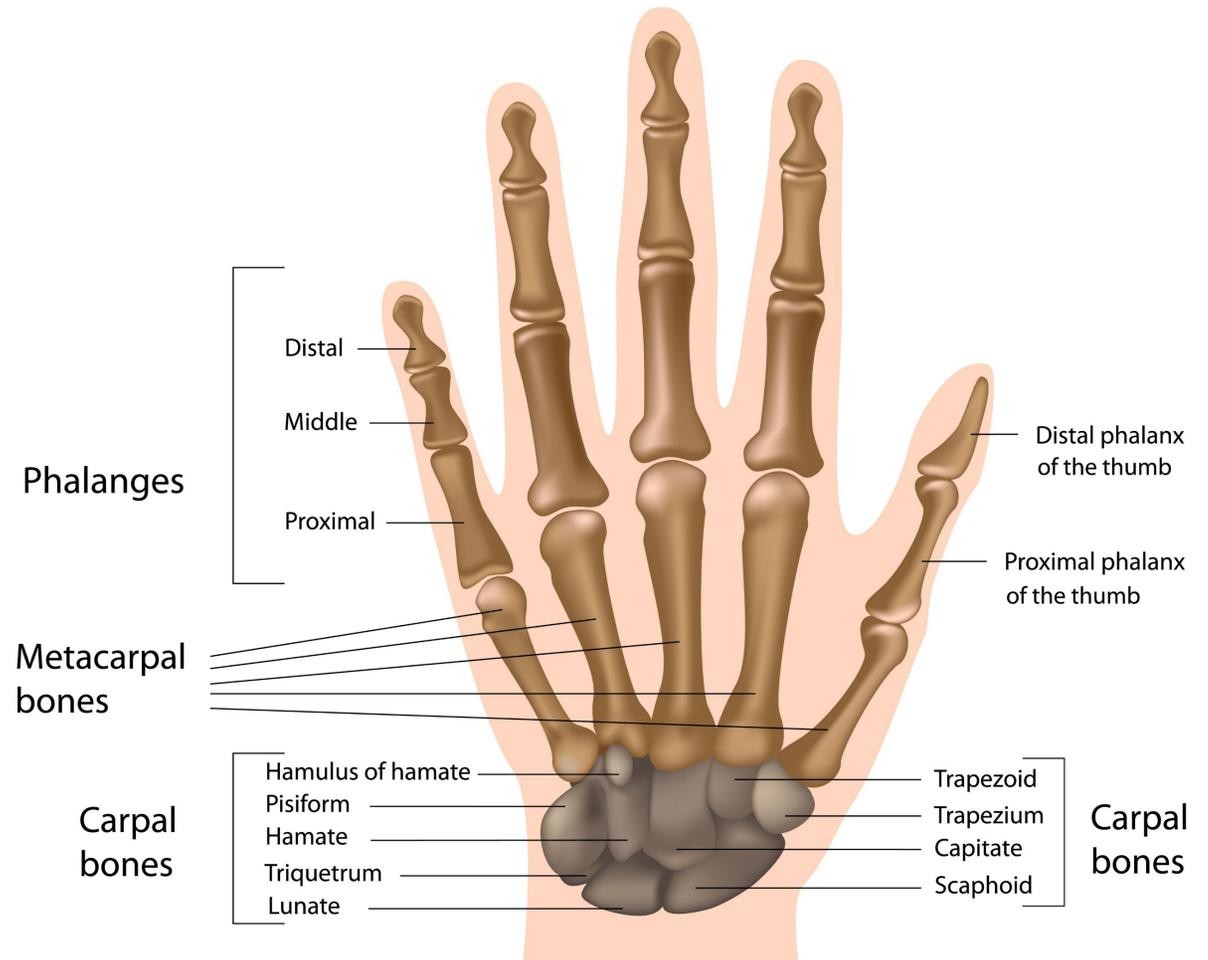


Figure from:
[<http://froap.tk/hand-anatomy/>]

Hand anatomy

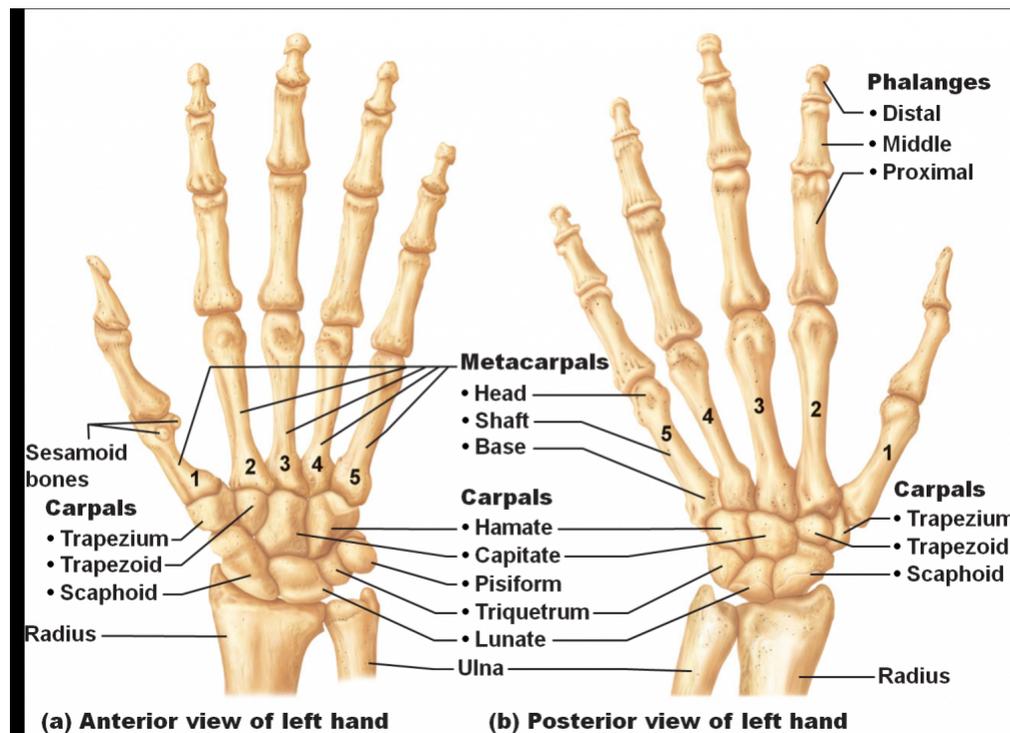


Figure from: [<http://amels.tk/hand-anatomy/>]

Joints: Hand

Anatomy of the Hand



Figure from:
[<http://healthcare.utah.edu/orthopaedics/hand-therapy.php>]

Hand anatomy

- Muscles:
 - The **purpose** of a muscle is to **move a joint**.
 - For muscles, it is interesting to know;
 - Their **origin** point (where they anchor)
 - It is a certain point of a bone that remains stable during contraction.
 - Their **insertion** (where they link)
 - The insertion is a certain point of a bone (in some cases also a certain point of a fascia), in which a certain muscle, as well as its force during contraction inserts.
 - The muscle inserts in most cases via a tendon onto the bone.
 - Their **innervation** (the nerve which activates them)

Hand anatomy

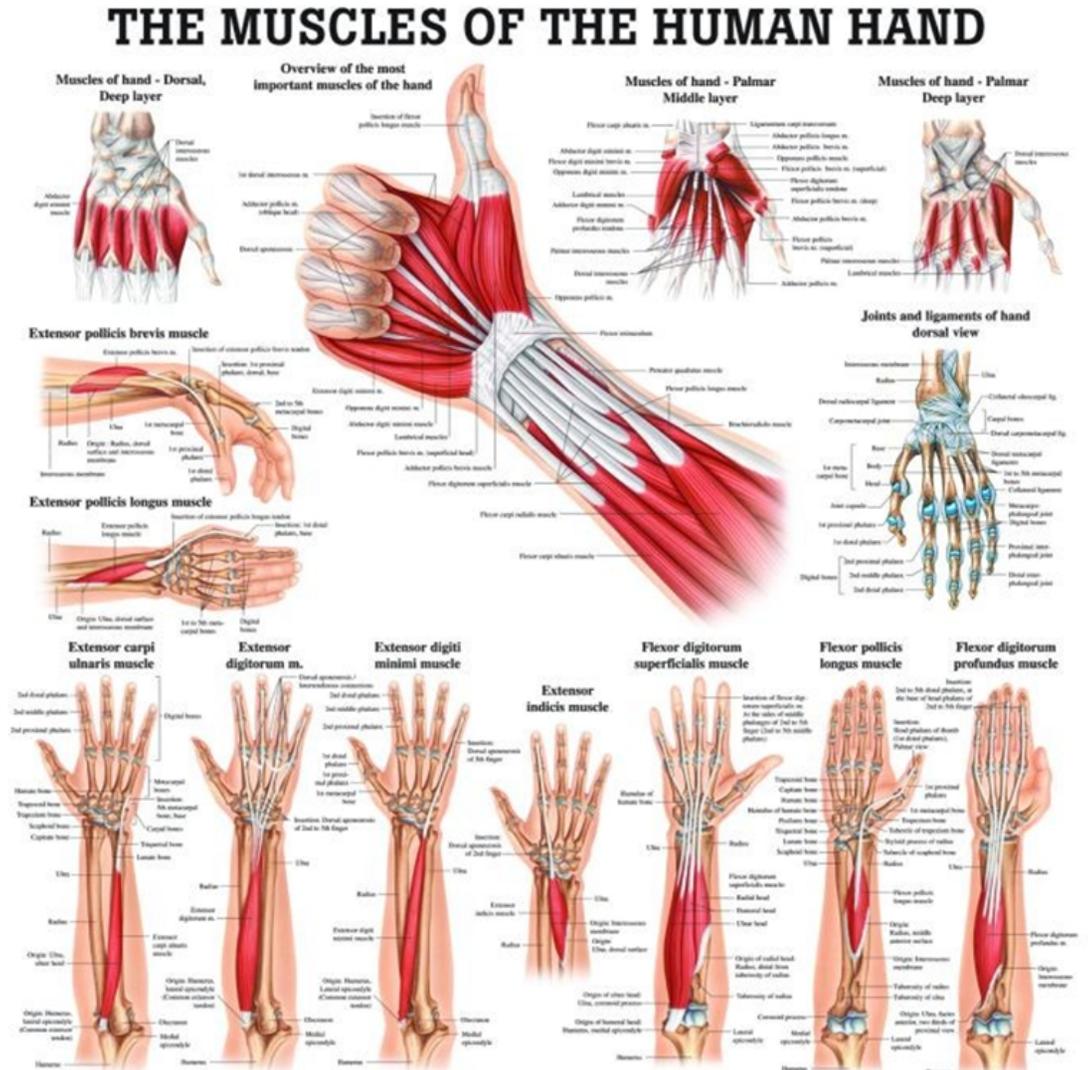


Figure from:
<https://www.anatomywarehouse.com/body-parts/upper-lower-limbs/hand/hand-charts>

Hand anatomy

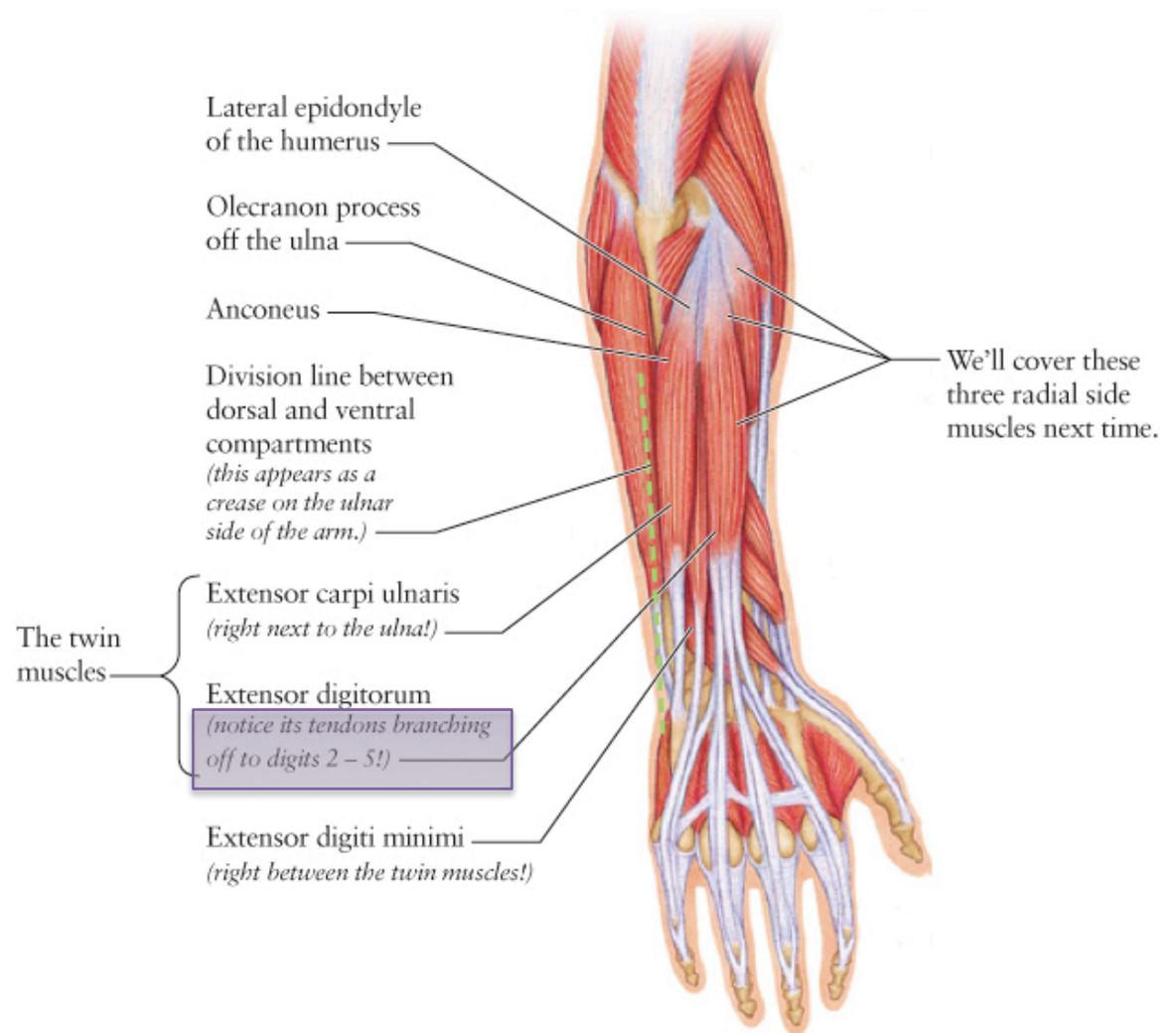


Figure from:
[<http://anatomyproartifex.blogspot.mx/>]

Hand Anatomy



flexor carpi radialis
flexor carpi ulnaris

Flexor carpii ulnaris:
flexes and adducts
hand at wrist
Flexor carpi radialis:
flexes and abducts
hand

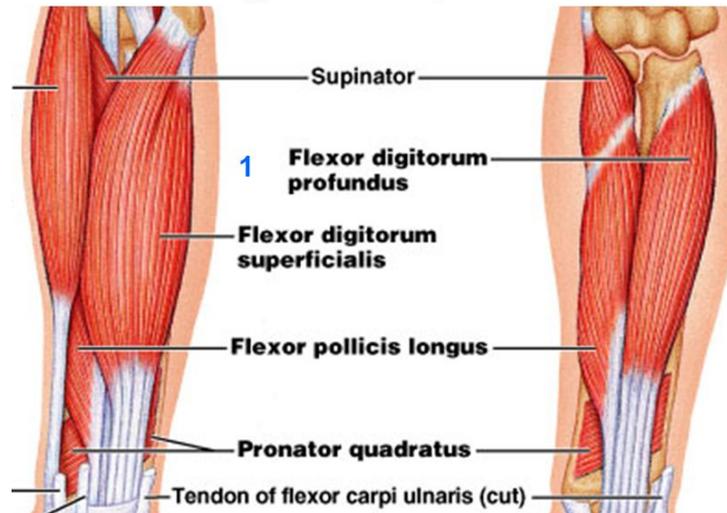
Flexor digitorum
superficialis:
flexes middle
phalanges of
digits 2 – 5

Flexor digitorum
profundus: flexes
distal phalanges
of digits 2 - 5

Flexor pollicis
longus: flexes
thumb

Hand anatomy

Flexor digitorum profundus



Innervation

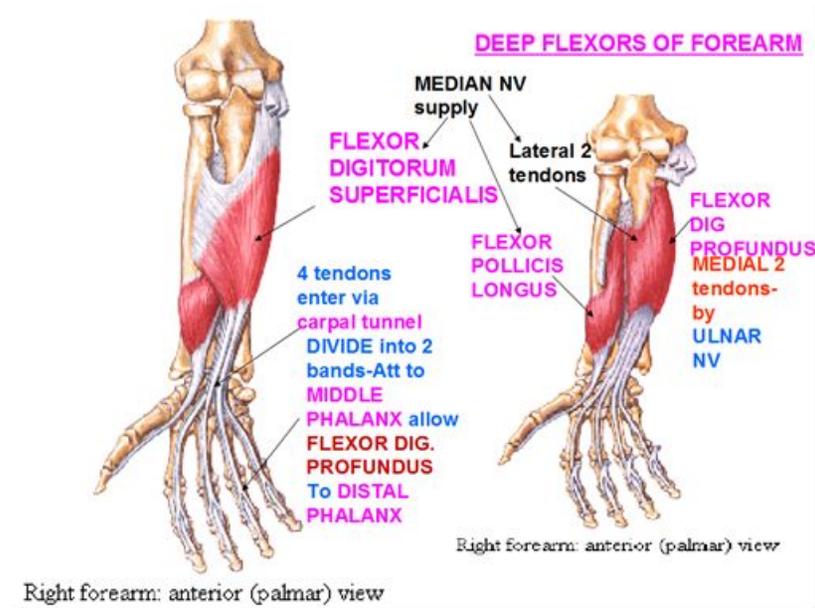


Figure from: [<http://www.pinsdaddy.com/flexor-digitorum-superficialis-and-profundus>]

Hand anatomy

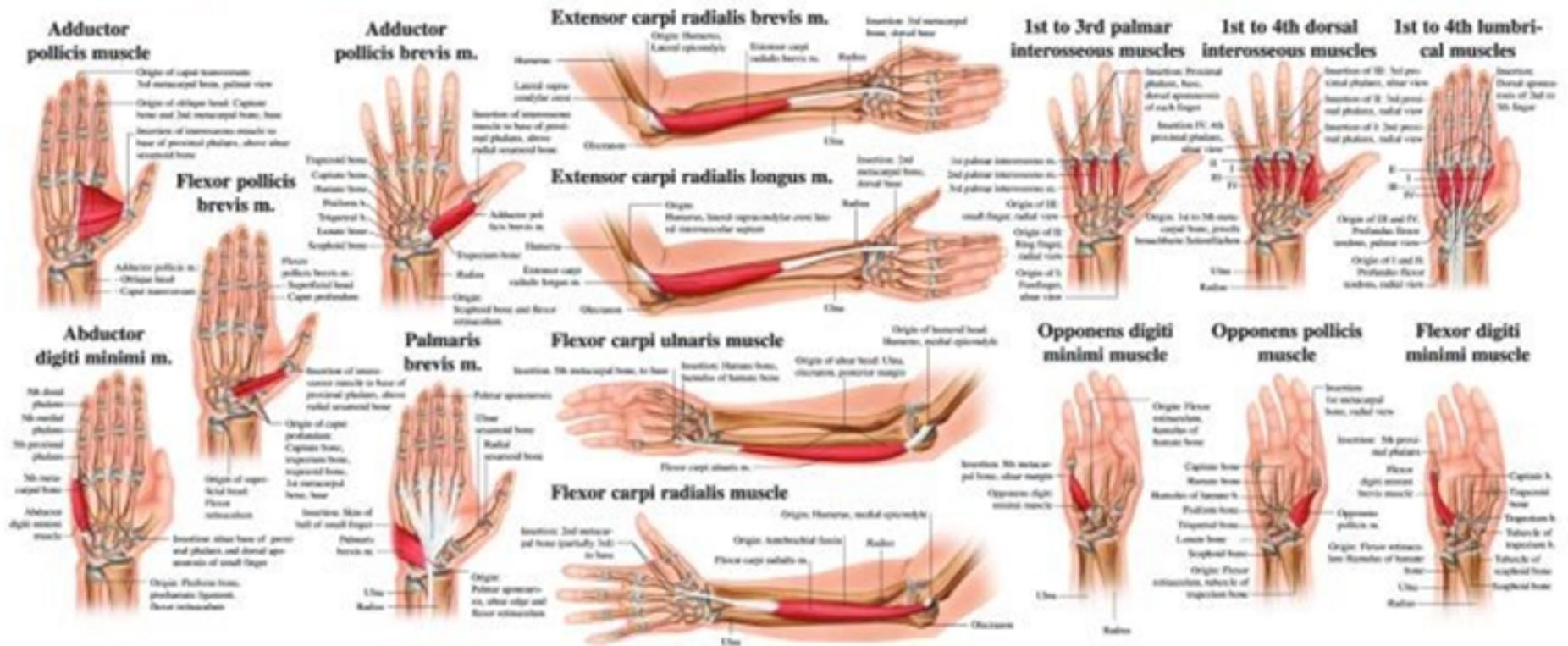
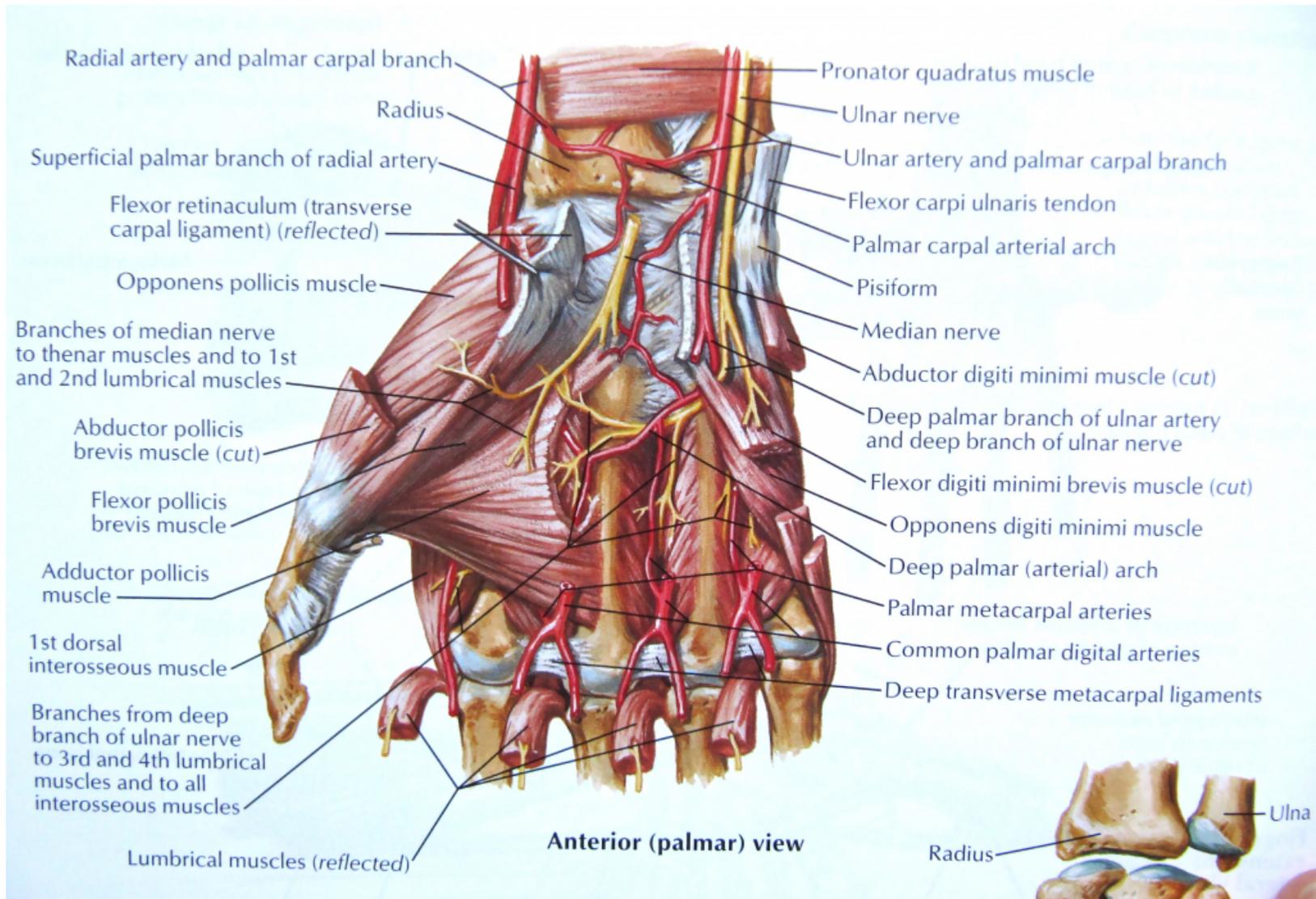


Figure from: [<https://www.anatomywarehouse.com/body-parts/upper-lower-limbs/hand/hand-charts>]

Hand anatomy



Source: [I can't remember where I got it from ☹️]





JOINTS AND MOVEMENTS

Joints

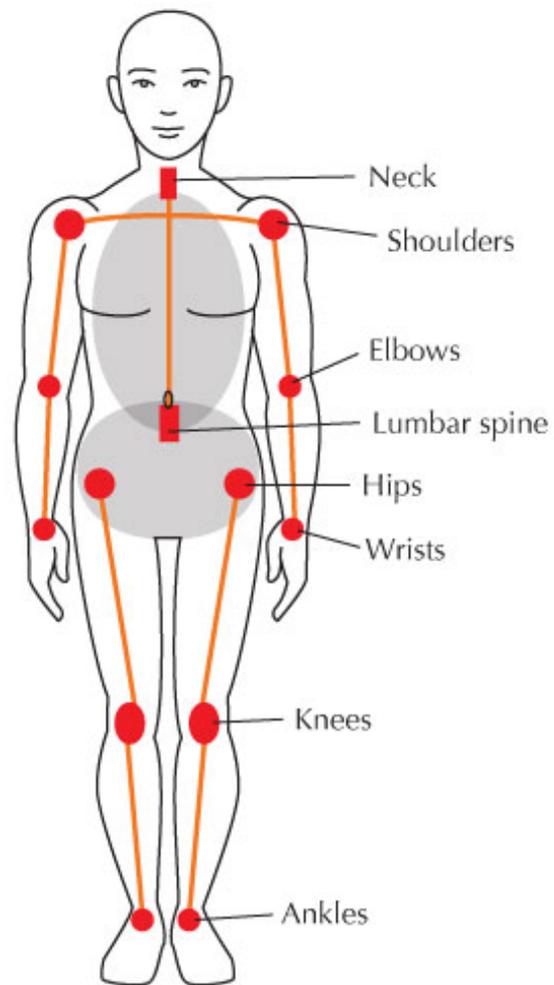


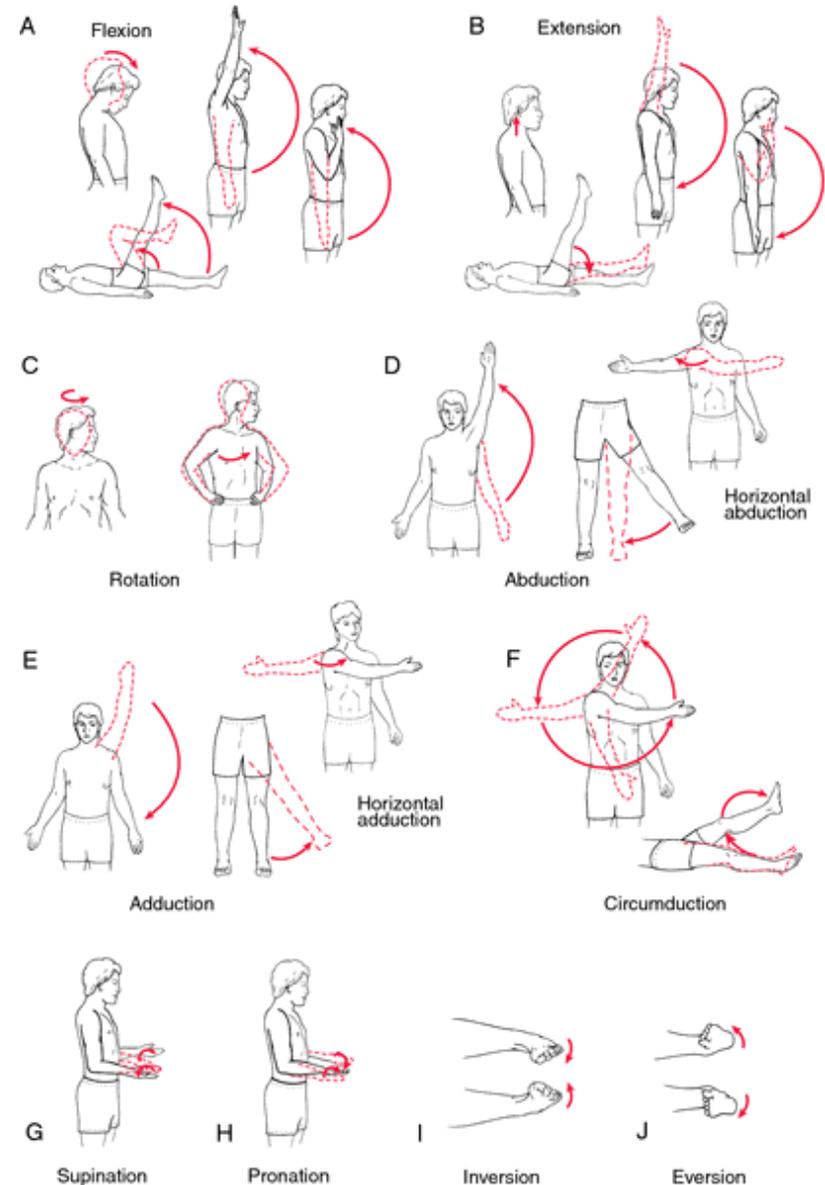
Figure from: [<http://design.tutsplus.com/articles/human-anatomy-fundamentals-flexibility-and-joint-limitations--vector-25401>]

Movements: Coarse

Tipo de movimiento según dirección		Tipo de movimiento según articulación	
Flexión / Extensión	Reducción (flexión) o aumento (extensión) del ángulo entre los huesos	Dedos	Flexión / Extensión
Pronación / Supinación	Giro de la palma de la mano hacia abajo (pronación) o hacia arriba (supinación)	Muñeca	Pronación / Supinación Elevación / Depresión
Elevación / Depresión	Movimiento hacia arriba (elevación) o hacia abajo (depresión)	Codo	Flexión / Extensión
Aducción / Abducción	Acercamiento (aducción) o alejamiento (abducción) del plano medio del cuerpo.	Hombro	Flexión / Extensión Elevación / Depresión Aducción / Abducción

Tabla 3.2 Movimientos corporales de la extremidad superior

Table: [Oropeza-Salas, BSc thesis, 2012]
 Figure from: [<http://medical-dictionary.thefreedictionary.com/physical+exercise>]



Movements: Neck

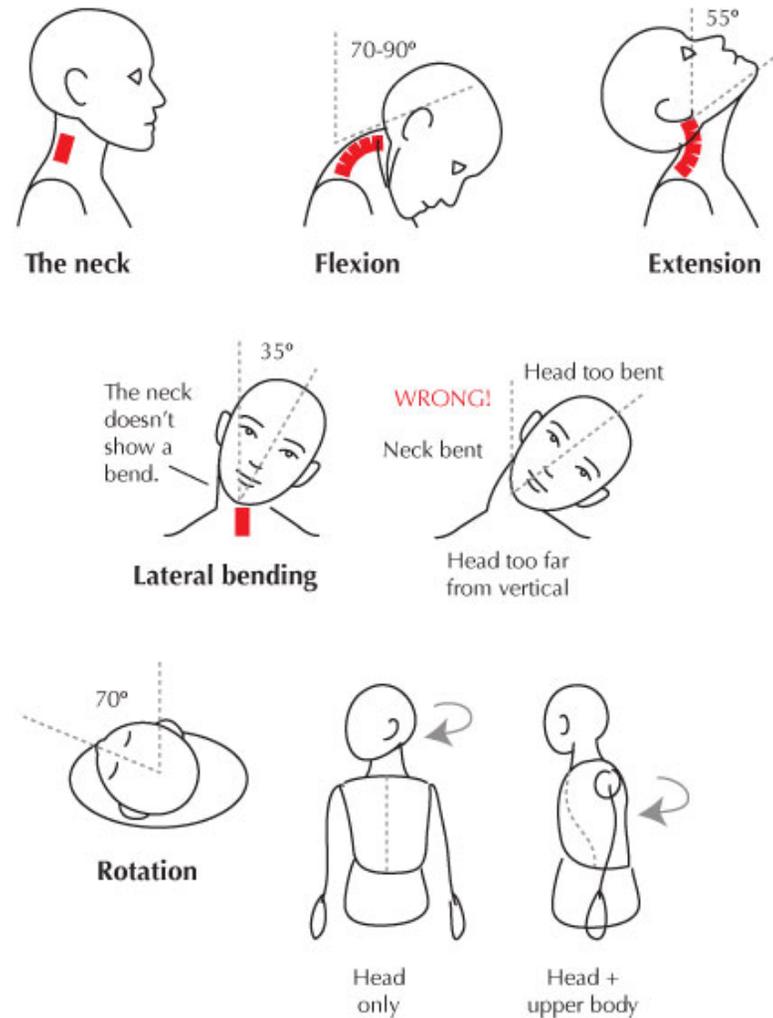
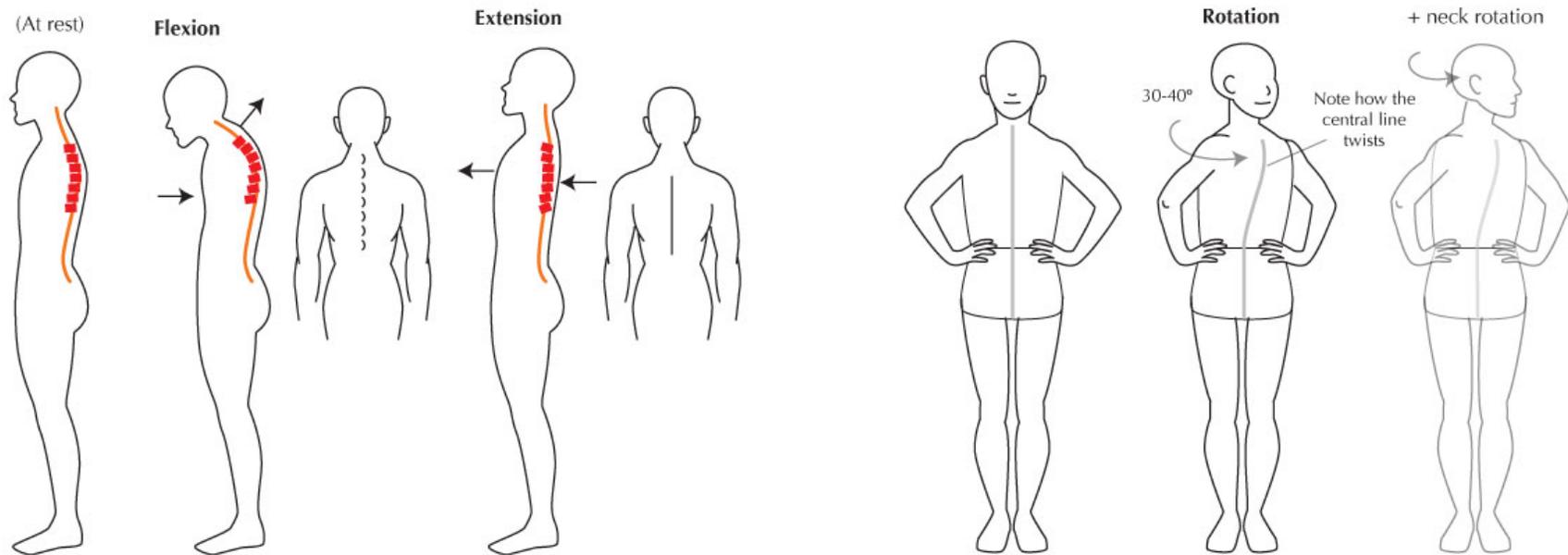


Figure from: [<http://design.tutsplus.com/articles/human-anatomy-fundamentals-flexibility-and-joint-limitations--vector-25401>]

Movements: Spine



Figures from: [<http://design.tutsplus.com/articles/human-anatomy-fundamentals-flexibility-and-joint-limitations--vector-25401>]

Movements: Lumbar

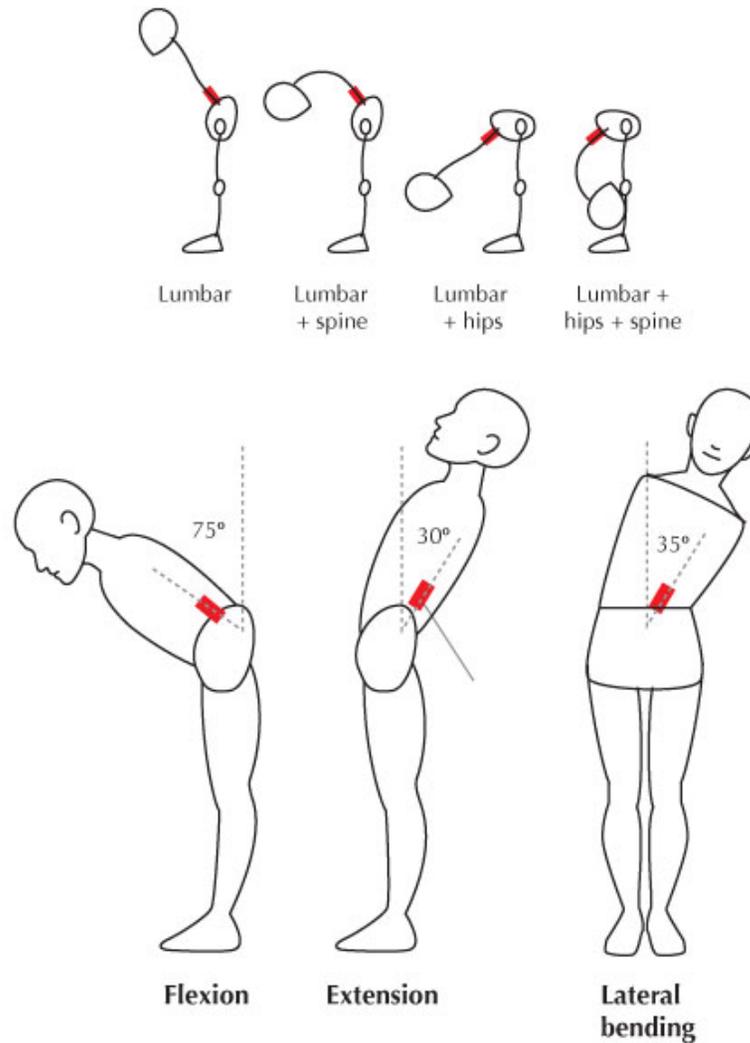


Figure from: [<http://design.tutsplus.com/articles/human-anatomy-fundamentals-flexibility-and-joint-limitations--vector-25401>]

Movements: Shoulder

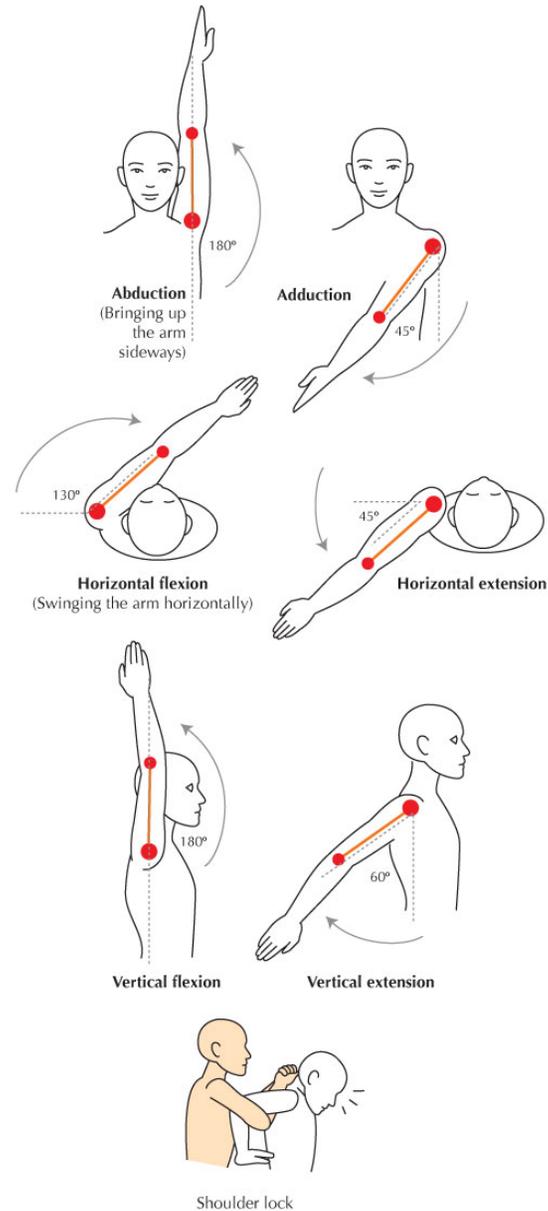
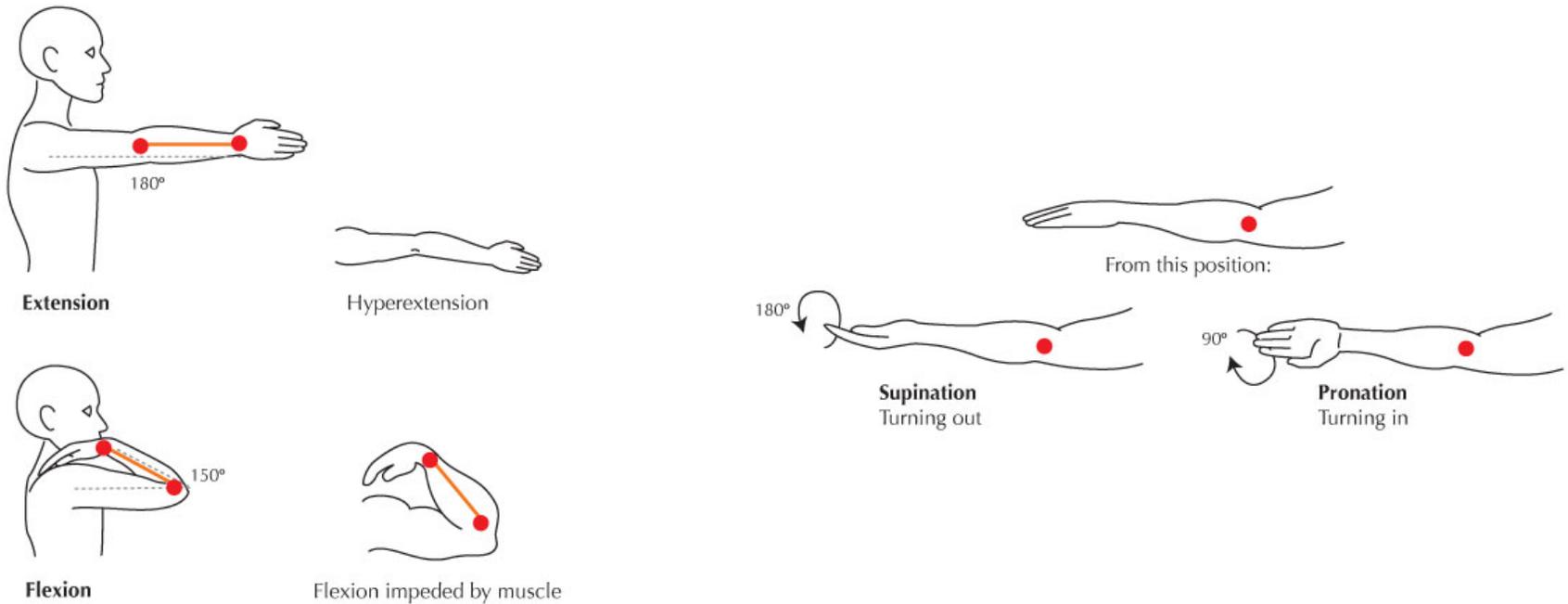


Figure from:
[<http://design.tutsplus.com/article/s/human-anatomy-fundamentals-flexibility-and-joint-limitations--vector-25401>]

Movements: Elbow



Figures from: [<http://design.tutsplus.com/articles/human-anatomy-fundamentals-flexibility-and-joint-limitations--vector-25401>]

Movements:Wrist

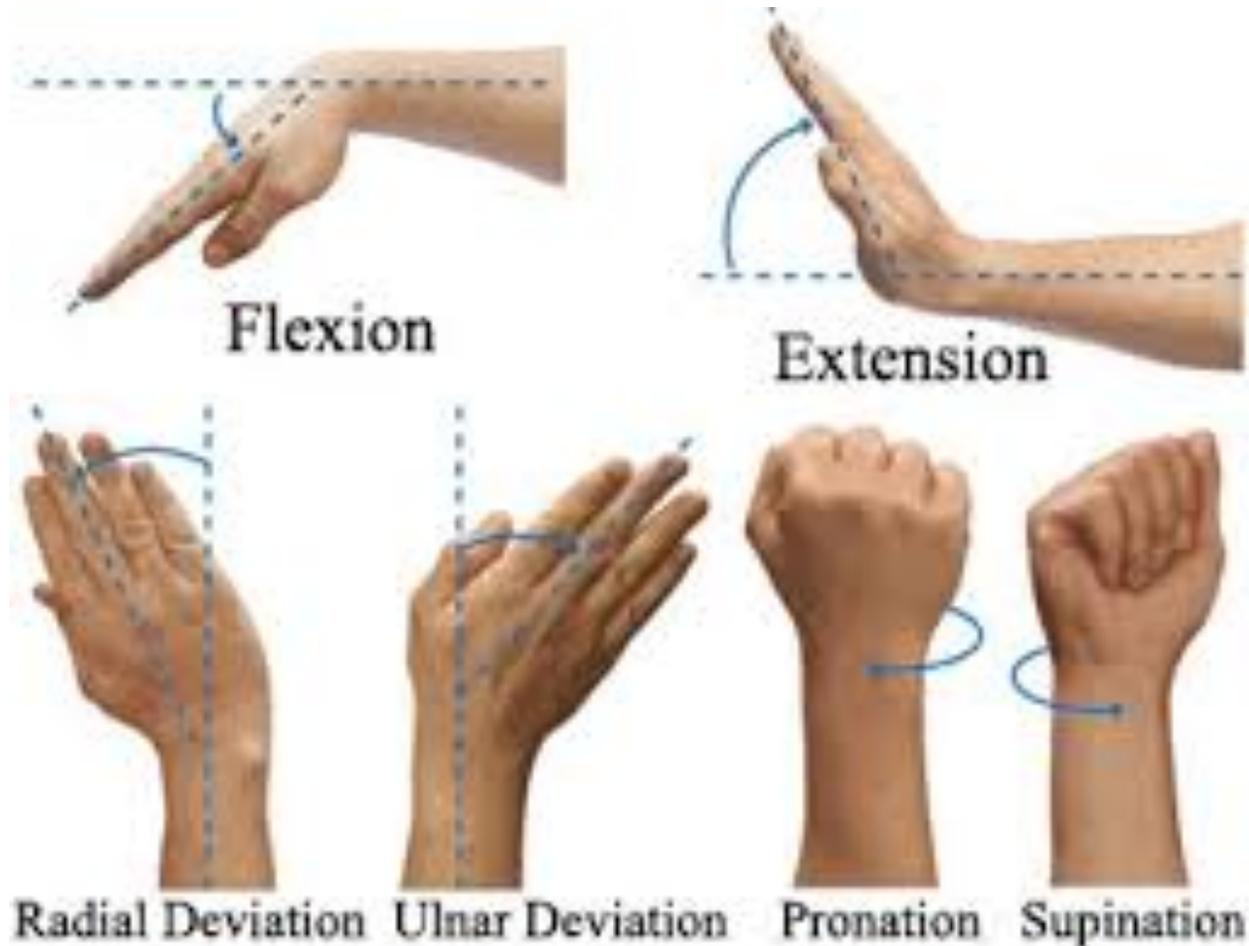


Figure from:

[http://www.researchgate.net/post/Is_pronation_supination_a_movement_part_of_the_wrist_or_the_forearm]

Movements: Hip

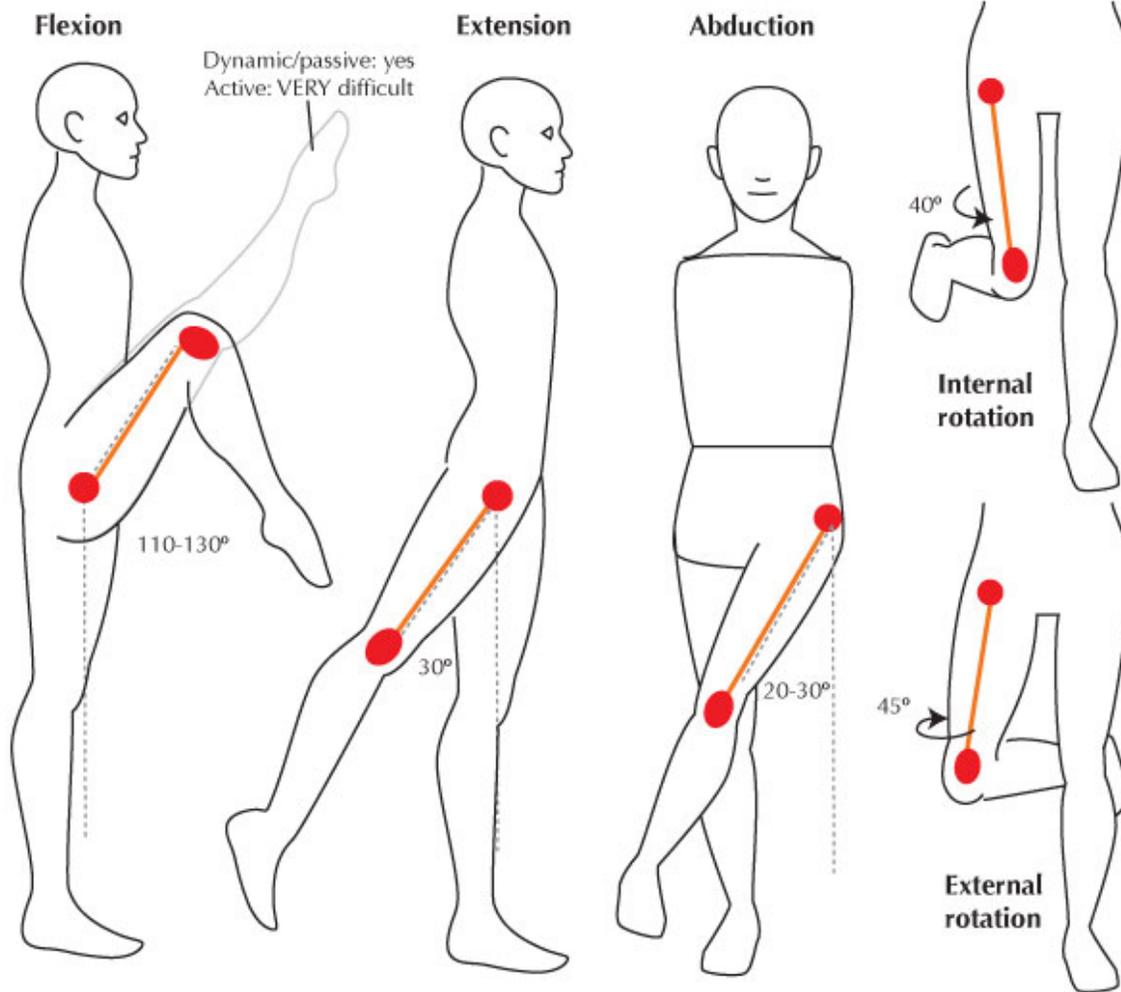


Figure from: [<http://design.tutsplus.com/articles/human-anatomy-fundamentals-flexibility-and-joint-limitations--vector-25401>]

Movements: Knee

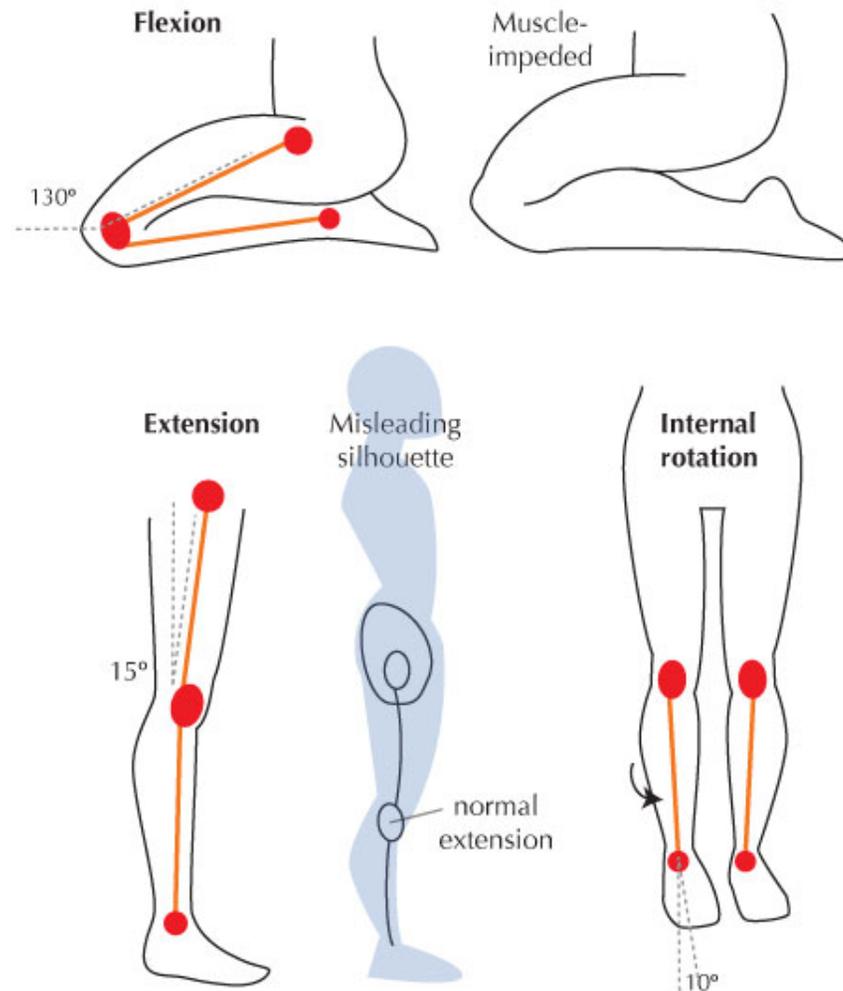


Figure from: [<http://design.tutsplus.com/articles/human-anatomy-fundamentals-flexibility-and-joint-limitations--vector-25401>]

Movements: Ankle

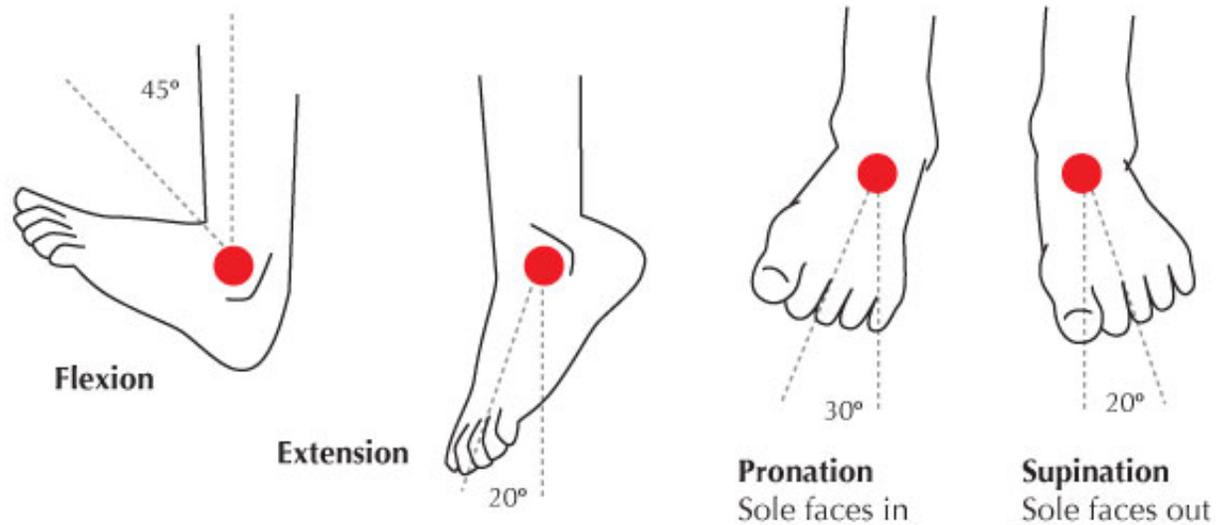
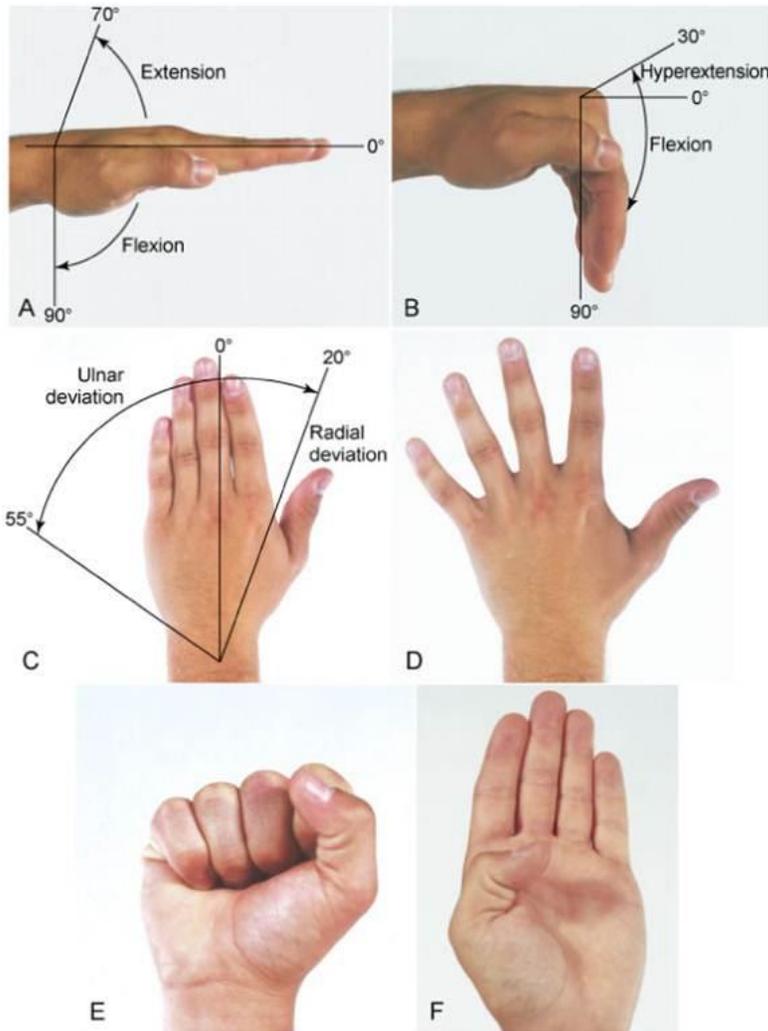


Figure from: [<http://design.tutsplus.com/articles/human-anatomy-fundamentals-flexibility-and-joint-limitations--vector-25401>]

Movements: Hand



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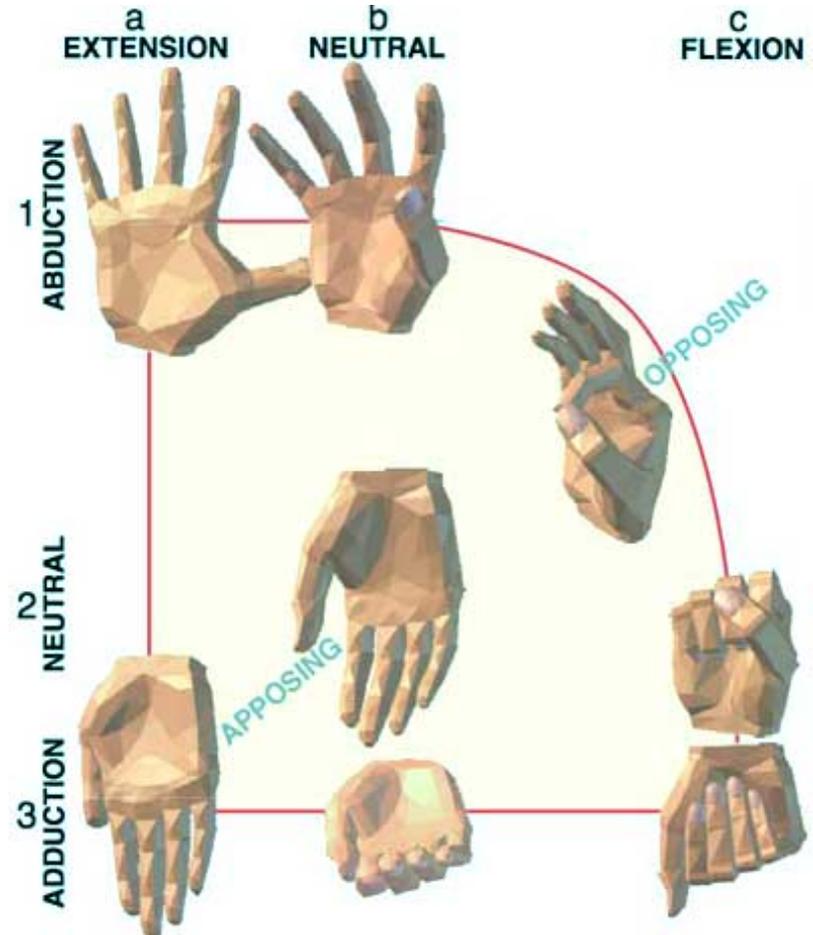


Figure from: [<http://studiolab.io.tudelft.nl/vrhand/>]

Figure from:
[\[https://www.studyblue.com/notes/n/chapter-22-musculoskeletal/deck/1329298\]](https://www.studyblue.com/notes/n/chapter-22-musculoskeletal/deck/1329298)



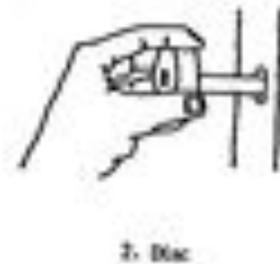
Movements



Pinch



Push



Power



Flat Hand Push



Finger Push

Movements

Movement Terminology - Physical Literacy - Fundamental Movements

* Movement Terminology: Stationary (maintain and control body movement)

Bend	Elevate	Spin	Pull /	Push (Shoulder Girdle)
Stretch	Shake	Shrug	Turn	<u>Controlled 1-Step (F/B - L/R)</u>

* Balance / Stability Movements: (shift in body parts that alter one's balance)

Spin	Roll	Land	Fall	Balance
Stop	Twist	Swing	Dodge	Athletic positions

* Fundamental Movements: (transport body from one place to another)

Climb	Leap	Swing	Shuffle	Hop
Gallop	Run	Skip	Jump	Change of direction

* Object Control: (send, receive, or travel with an object)

<u>Send</u>	<u>Receive</u>	<u>Travel</u>	<u>Send / Receive</u>
Kick	Catch	<u>Dribble:</u>	<u>Strike:</u>
Roll	Stop	Feet	Bat / Racket / Stick
Throw	Trap	Hands	Ball – Puck
Strike		Stick	Foot - Punt / Kick



Some literatura pending revision

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