Muscles of the hand
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Thenar Muscles

Thenar muscles are three short muscles located at base of the thumb. All are innervated by median nerve

**Opponens Pollicis:** It lies underneath the other two muscles. Originates from the flexor retinaculum and carpal bones. It inserts into the lateral margin of the first metacarpal

Actions: Opposes the thumb, by medially rotating and flexing the metacarpal on the trapezium.

**Abductor Pollicis Brevis**

This muscle is found anteriorly to the opponens pollicis and proximal to the flexor pollicis brevis. Originates from the flexor retinaculum and carpal bones. Attaches to lateral side of proximal phalanx of the thumb.

Actions: Abducts the thumb.

**Flexor Pollicis Brevis** The most distal of the thenar muscles. Originates from flexor retinaculum and carpal bones. Attaches to the base of the proximal phalanx of the thumb.

Actions: Flexes the metacarpophalangeal (MCP) joint of the thumb.
Hypothenar Muscles

All are innervated by the ulnar nerve

**Opponens Digiti Minimi**
The opponens digit minimi lies deep to the other hypothenar muscles.

**Attachments**: Originates from flexor retinaculum and carpal bones, inserts into the medial margin of fifth metacarpal bone

**Actions**: It rotates the metacarpal of the little finger towards the palm, producing opposition.

**Abductor Digiti Minimi**
The most superficial of the hypothenar muscles.

**Attachments**: Originates from the pisiform and the tendon of the flexor carpi ulnaris. It attaches to the base of the proximal phalanx of the little finger.

**Actions**: Abducts the little finger.

**Flexor Digiti Minimi Brevis**
This muscles lies laterally to the abductor digiti minimi.

**Attachments**: Originates from the flexor retinaculum and carpal bones, and inserts into the base of the proximal phalanx of the little finger.

**Actions**: Flexes the MCP joint of the little finger.
Short Muscles of Thuml

Adductor Pollicis

**Origin:** Oblique head; 2\textsuperscript{nd} and 3\textsuperscript{rd} metacarpal bones; Transverse head; 3\textsuperscript{rd} metacarpal bone

**Insertion:** Base of proximal phalanx of thumb

**NS:** Deep branch of ulnar nerve

**Action:** Adduction of thumb
Lumbricals
There are four lumbricals in the hand, each associated with a finger. They are very crucial to finger movement, linking the extensor tendons to the flexor tendons.

**Attachments:** Each lumbrical originates from a tendon of the flexor digitorum profundus. They pass dorsally and laterally around each finger, and inserts into the extensor hood.

**Actions:** The flex at the MCP joint, and extend at the interphalangeal (IP) joints of each finger.

**Innervation:** The lateral two lumbricals are innervated by the median nerve. The medial two lumbricals innervated by the ulnar nerve.
a) Dorsal Interossei

b) Palmar Interossei
Interossei: All are supplied by ulnar nerve

The interossei muscles are located between the metacarpals. They can be divided into two groups: the dorsal and palmar interossei.

In addition to their actions of abduction and adduction of the fingers, the interossei also assist the lumbricals in flexion and MCP joints and extension at the IP joints.

Dorsal Interossei

The most superficial of all dorsal muscles, these can be palpated on the dorsum of the hand. There are four dorsal interossei muscles.

**Attachments:** Each interossei originates from the lateral and medial surfaces of the metacarpals. They attach into the extensor hood and proximal phalanx of each finger.

**Actions:** Abduct the fingers at the MCP joint.

**Innervation:** Ulnar nerve.
Palmar Interossei

These are located anteriorly on the hand. There are three palmar interosseous muscles – although some texts report a fourth muscle at the base of the proximal phalanx of the thumb.

**Attachments:** Each interosseous originates from a medial or lateral surface of a metacarpal, and attaches into the extensor hood and proximal phalanx of same finger.

**Actions:** Adducts the fingers at the MCP joint.

**Innervation:** Ulnar nerve.

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Palmar: Pad adduction
Dorsal: Dab abduction
Thank You