

ANTERIOR AND LATERAL COMPARTMENT OF LEG

LEARNING OBJECTIVES

FASCIAL COMPARTMENTS OF LEG

Two intermuscular septa arise from deep fascia of leg

Attached to fibula

Together with interosseus membrane divide leg into 3 compartments

– Anterior

– Lateral

– Posterior

CONTENTS OF ANTERIOR FASCIAL

COMPARTMENT OF LEG

Cutaneous nerves

Superficial veins

Muscles:

– Tibialis anterior

– Extensor digitorum longus

– Peroneus tertius

– Extensor hallucis longus

Anterior tibial artery

Deep peroneal nerve

RETINACULA ASSOCIATED WITH ANTERIOR COMPARTMENT

Thickening of deep fascia

Retain long tendons in position

Superior extensor retinaculum attached to distal ends of tibia and fibula

Deep extensor retinaculum Y shaped stem attached to calcaneum

Upper limb to medial malleolus

Lower limb continuous with plantar fascia medially

CUTANEOUS NERVES OF ANTERIOR

COMPARTMENT

Lateral cutaneous nerve of calf

Branch of common peroneal

Upper part of anterolateral surface

Superficial peroneal nerve

lower part of anterolateral surface

Saphenous nerve

Branch of femoral nerve

Anteromedial surface of leg

MUSCLES OF ANTERIOR

COMPARTMENT

Tibialis anterior

Extensor digitorum longus

Peroneus tertius

Extensor hallucis longus

Nerve supply

Deep peroneal nerve

Common action

Extends/dorsiflex foot at ankle joint

TIBIALIS ANTERIOR

Origin

Upper half of lateral surface of tibia

Interosseus membrane

At ankle passes **beneath both extensor retinacula**

Insertion

Medial cuneiform

Base of first metatarsal bone

Action

Dorsiflex foot

Inverts foot at subtalar joint

Helps in holding medial longitudinal arch

EXTENSOR DIGITORUM LONGUS

Origin

Upper 2/3 of anterior surface of fibula shaft

Interosseus membrane

At ankle the tendon passes behind both extensor retinacula

Insertion

Divides into four tendons pass to lateral 4 toes

Incorporated into extensor expansion

Action

Dorsiflex foot at ankle joint

Extends toes

EXTENSOR DIGITORUM LONGUS

Extensor expansion

4 tendons of extensor digitorum longus incorporate into extensor expansion

Center part of expansion inserted into base of middle phalanx

Two lateral parts converge insert into base of distal phalanx

PERONEUS TERTIUS

Part of extensor digitorum longus

Origin

Lower 1/3rd of anterior surface of fibula

Interosseus membrane

Share the synovial sheath of extensor digitorum longus tendon

Passes **beneath both extensor retinacula**

Insertion

Medial side of base of fifth metatarsal

Action

Extends foot at ankle

Everts foot at subtalar and transverse tarsal joint

EXTENSOR HALLUCIS LONGUS

Origin

Middle half of anterior surface of fibula

Interosseus membrane

Passes beneath both retinacula

Insertion

Base of distal phalanx of great toe

Actions

Extends foot at ankle

Extends big toe

Invert foot at subtalar and transverse talar joints

SUMMARY OF ACTION OF ANTERIOR

COMPARTMENT MUSCLE

At ankle

Dorsiflexion

– All muscles of anterior compartment

Subtalar and transverse tarsal joint

Inversion

– Tibialis anterior

– Extensor hallucis longus

Eversion

– Peroneus tertius

Extension of big toe and lateral toes

– Extensor hallucis and extensor digitorum longus

ANTERIOR TIBIAL ARTERY

Artery of anterior compartment

Smaller terminal branch of **popliteal artery**

Arises in popliteal fossa

At the lower border of popliteus

Enters anterior compartment through an opening in interosseus membrane

ANTERIOR TIBIAL ARTERY

In anterior compartment

Descends on interosseus membrane

In upper part deep to all muscles

In lower part superficial

Crossed by extensor hallucis from lateral to medial

Deep peroneal nerve is lateral in upper and lower

3rd

Anterior in middle third

ANTERIOR TIBIAL ARTERY

At ankle

Passes beneath superior extensor retinaculum

Extensor hallucis longus tendon medially

Extensor digitorum longus tendon laterally

Continues as **dorsalis pedis artery**

ANTERIOR TIBIAL ARTERY

Branches

Muscular branches

Anastomotic branches

- For knee

– Anterior and posterior tibial recurrent

For ankle

– Anterior medial and anterior lateral malleolar

DEEP PERONEAL NERVE

Nerve of anterior compartment

Terminal branch of common peroneal

Arise within peroneus longus muscle on lateral side of neck of fibula

Enters anterior compartment by piercing anterior intermuscular septum

DEEP PERONEAL NERVE

In anterior compartment

Descends on interosseus membrane

Lies deep to extensor digitorum longus

Lies first on the lateral side of anterior tibial artery then anterior then finally lateral to it

At the ankle lies behind the extensor retinacula between extensor hallucis and digitorum longus

Enters foot by passing beneath both extensor retinacula

DEEP PERONEAL NERVE

Branches in anterior compartment

Muscular

– Tibialis anterior

– Extensor digitorum longus

– Peroneus tertius

– Extensor hallucis longus

Articular branch to ankle joint

CONTENTS OF LATERAL

COMPARTMENT OF LEG

Muscles

– Peroneus longus

– Peroneus brevis

Peroneal artery

Superficial peroneal nerve

RETINACULA ASSOCIATED WITH LATERAL COMPARTMENT

Superior peroneal retinaculum

Start from lateral malleolus

Extends backwards and downwards

Attached at lateral surface of calcaneum

Inferior peroneal retinaculum

Extends from peroneal tubercle to calcaneum

MUSCLES OF LATERAL

COMPARTMENT

Peroneus longus

Peroneus brevis

Nerve supply

Superficial peroneal nerve

Action

Plantar flex foot at ankle joint

Evert foot at subtalar and transverse tarsal joint

PERONEUS LONGUS**Origin**

Upper 2/3rd of lateral surface of fibula

Runs downward behind lateral malleolus behind superior peroneal retinaculum

Runs on lateral surface of calcaneum beneath inferior retinacula

Winds around lateral margin of cuboid

Insertion

Medial cuneiform

Base of first metatarsal

PERONEUS BREVIS**Origin**

Lower 2/3rd of lateral surface of fibula

Passes downwards and forwards in contact with lateral malleolus passes beneath both peroneal retinacula

Insertion

Base of fifth metatarsal bone

SUMMARY OF ACTION OF LATERAL**COMPARTMENT MUSCLE**

At ankle

- Plantar flexion

At subtalar and transverse tarsal joint

- Eversion

SUPERFICIAL PERONEAL NERVE

Terminal branch of common peroneal

arises on the lateral side of neck of fibula in the substance of peroneus longus

Descends between peroneus longus and brevis

In the lower part of leg becomes cutaneous , divides into medial and lateral branch

SUPERFICIAL PERONEAL NERVE

Branches

Muscular

Peroneus longus

peroneus brevis

Cutaneous

Skin of lower part of front of leg

Dorsum of foot

Adjacent sides of 1st and 2nd toe

Lateral side of little toe

ARTERY OF

LATERAL COMPARTMENT

Branches from **peroneal artery**

A branch of posterior tibial artery

Arises in posterior compartment

Descends behind fibula

Related with flexor hallucis longus muscle

Pierces posterior fascial septum and supplies muscle of lateral compartment

Branches

- Muscular
- Nutrient artery to fibula
- Anastomotic branch
- Perforating branch