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 1/3\(^{rd}\) 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 subatalar 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