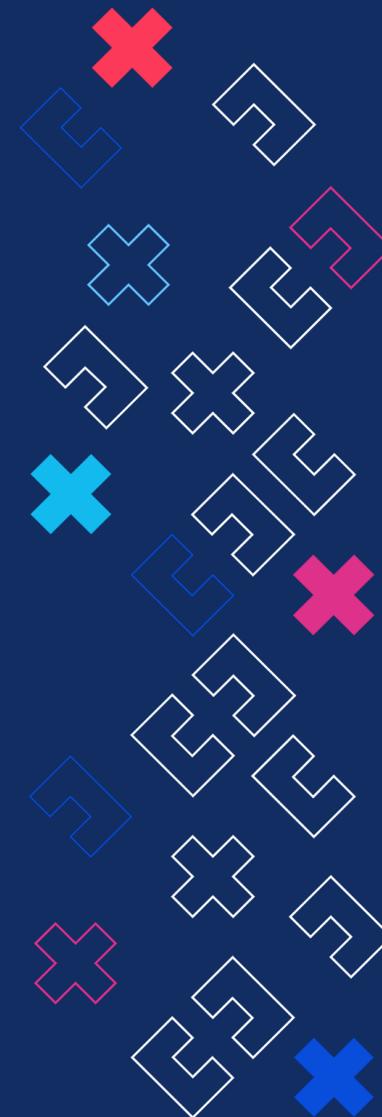


# Ultrasonografie hlezna

Miklošová B., Šprláková-Puková A.



- Proč?
- Jak vyšetřujeme?
- Co vidíme na UZ?

# Indikace

- Traumata - nejčastěji
- Zánětlivé změny
- Výpotek v kloubu
- Rezistence / expanze / kolekce měkkých tkání
  
- Navigace k intervencím – punkce, biopsie, aplikace léčiv

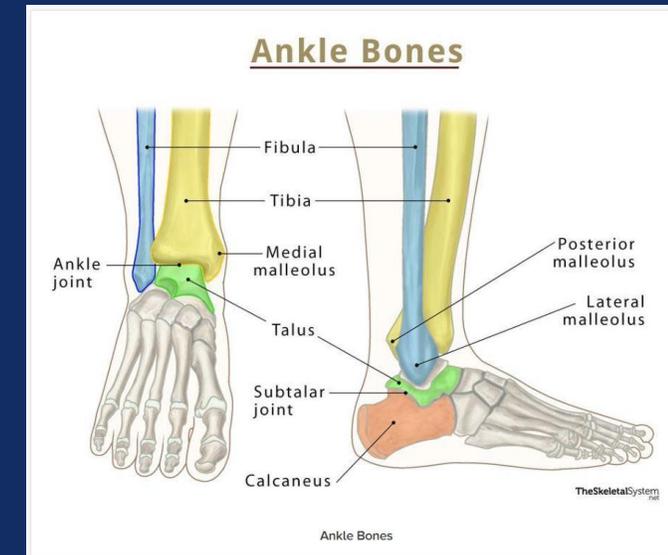
# Jak vyšetřujeme

- Pacient vsedě nebo vleže, pohodlná poloha
- Lineární sonda (L12-5 nebo 18-4)
- Dynamické vyšetření
- CEUS



# Anatomie

- **Articulatio talocruralis** – kloub složený kladkový
- Tibia + fibula tvoří jamku, hlavicí je trochlea talu
- Kloubní pouzdro – upíná se po okraji kloubních ploch, vnější plochy kotníků jsou mimo kloub, vpředu a vzadu je pouzdro volné (ventrální a dorzální recessus), fibrozní a synoviální vrstva
- Vazy – postranní, zesilují pouzdro
- Šlachy

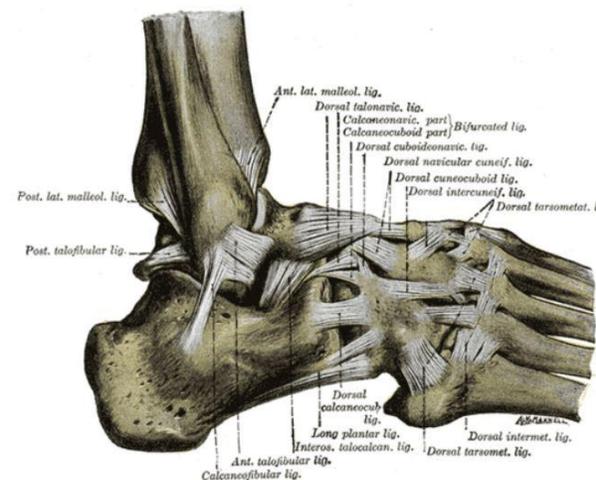


# Vazy

- **Tibiofibulární spojení**
  - lig. tibiofibulare interosseum
  - **lig. tibiofibulare ant.**
  - lig. tibiofibulare post.
- **Vazy laterálního kotníku**
  - **lig. fibulotalare ant.**
  - lig. fibulotalare post.
  - **lig. fibulocalcaneale**
- **Vazy mediálního kotníku**
  - **lig. deltoideum**

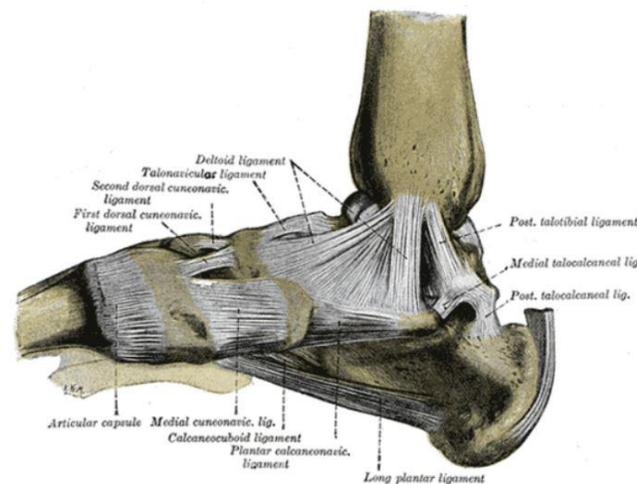
## Ankle and foot ligaments

lateral view



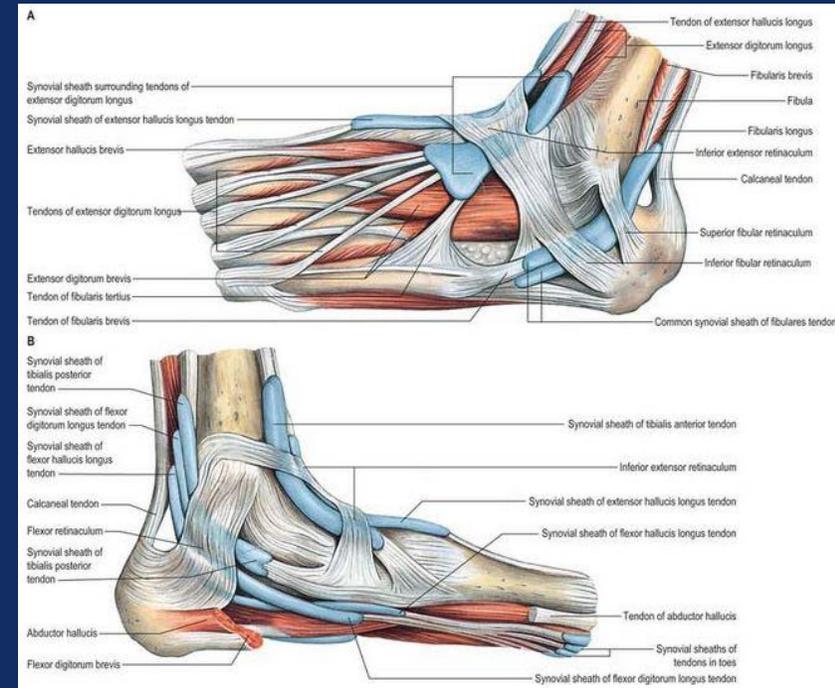
## Ankle and foot ligaments

medial view



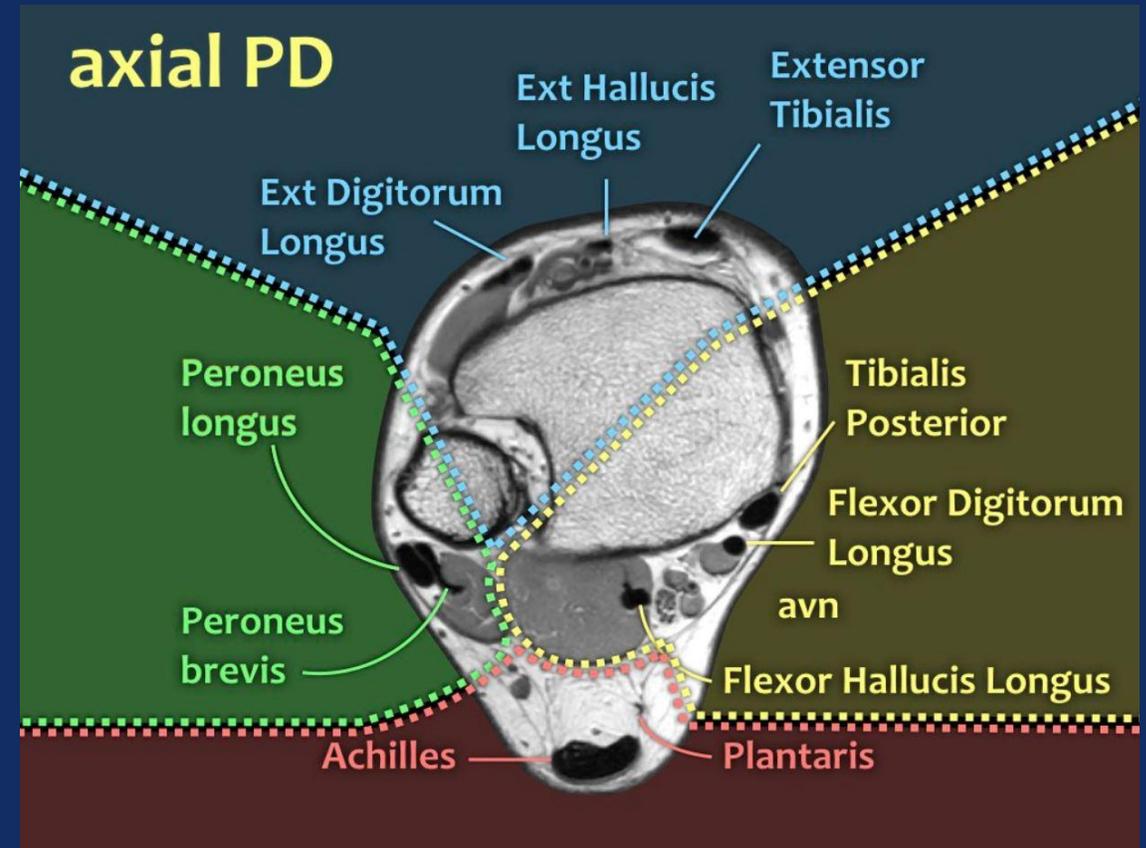
# Šlachy

- **Peroneální svaly :**
  - m. peroneus longus a brevis, peroneální retinakulum sup. a inf.
- **Extensory :**
  - m. tibialis ant., m. extensor hallucis longus, m. extensor digitorum longus, retinakulum extensorum sup. a inf.
- **Hluboké flexory :**
  - m. tibialis post., m. flexor digitorum longus, m. flexor hallucis longus, retinakulum flexorum a tarzální tunel
- **Povrchové flexory :** m. triceps surae a Achillova šlacha



# Hlezno

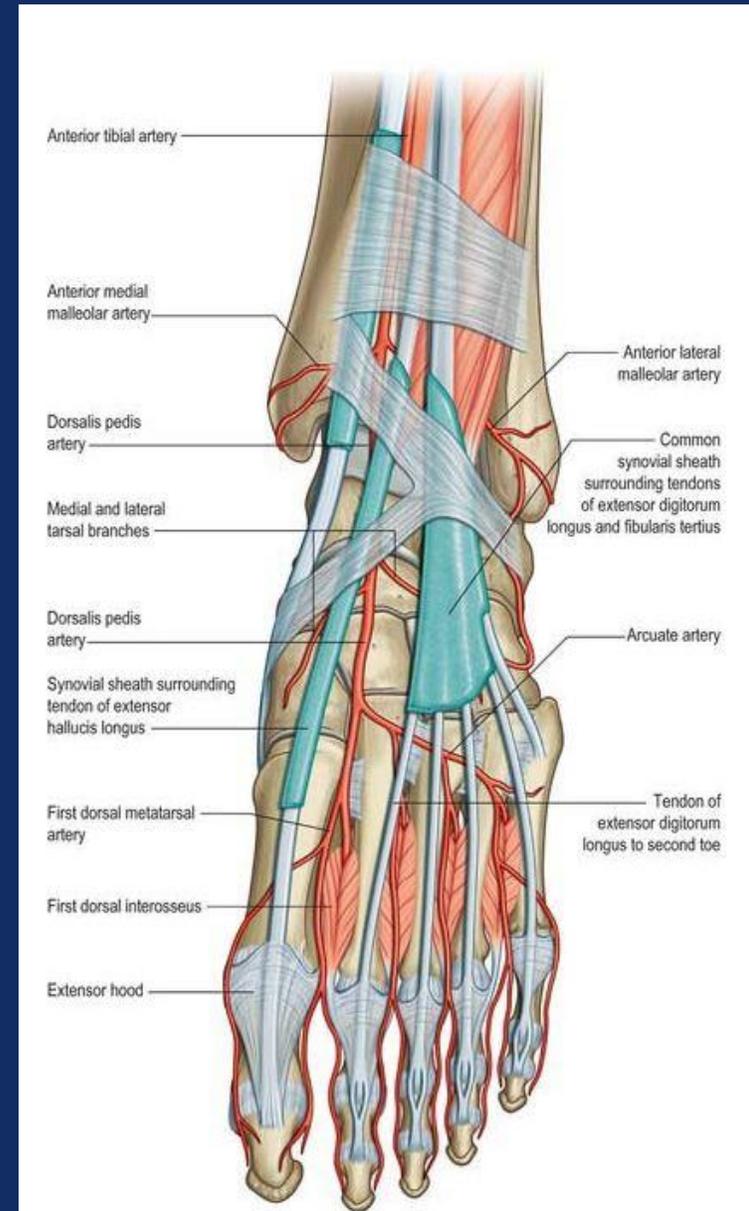
- 4 anatomické skupiny:
- Ventrální
- Laterální
- Mediální
- Dorzální



<https://radiologyassistant.nl/musculoskeletal/ankle/mri-examination#ligaments-deltoid-ligament>

# Hlezno ventrálně

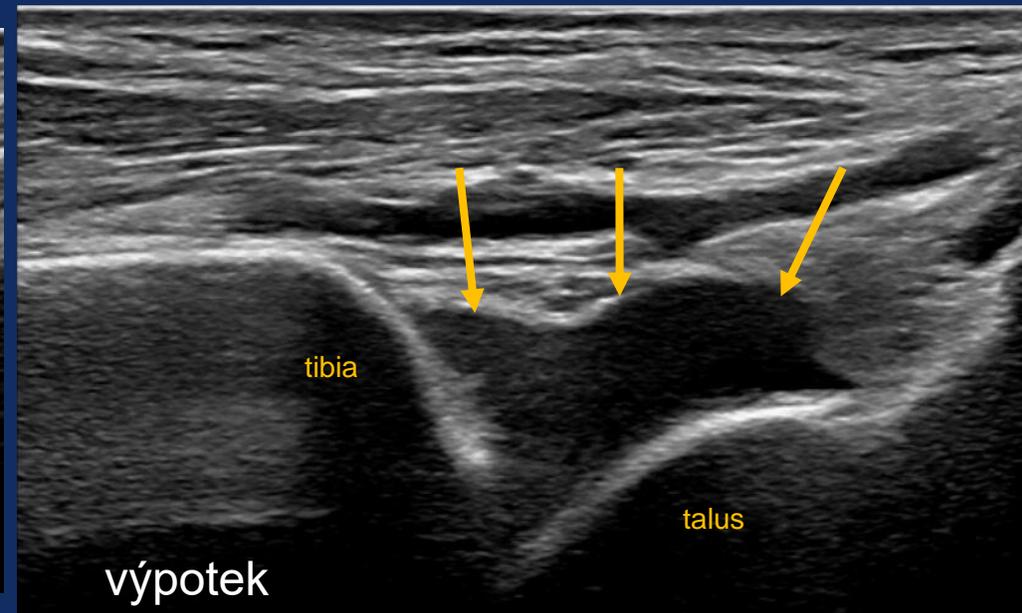
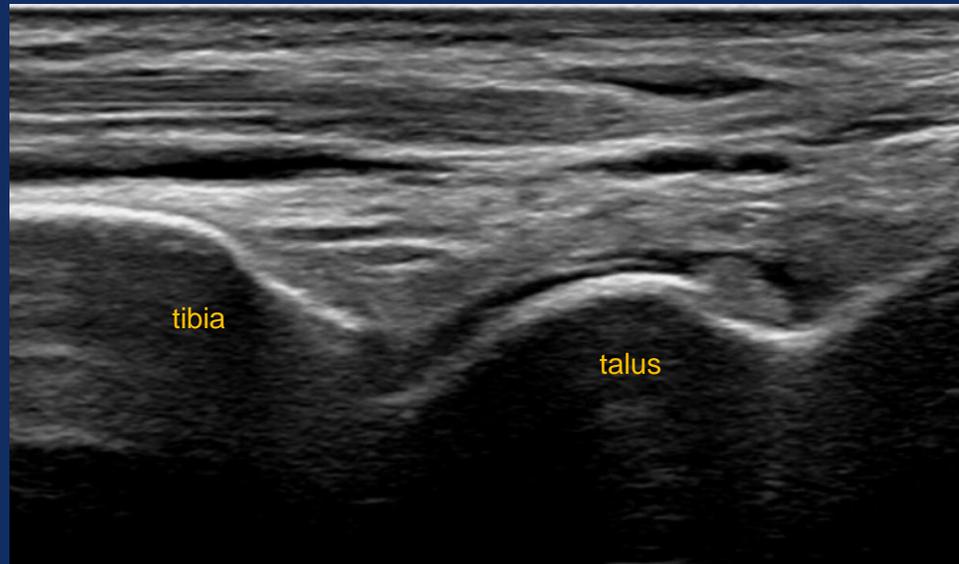
- Ventrální recessus kloubu
- M. tibialis ant.
- M. extensor hallucis longus
- M. extensor digitorum longus
- Retinaculum extensorum sup., inf.
- Lig. tibiofibulare ant.
- Nervově-cévní svazek



<https://basicmedicalkey.com/ankle-and-foot/>

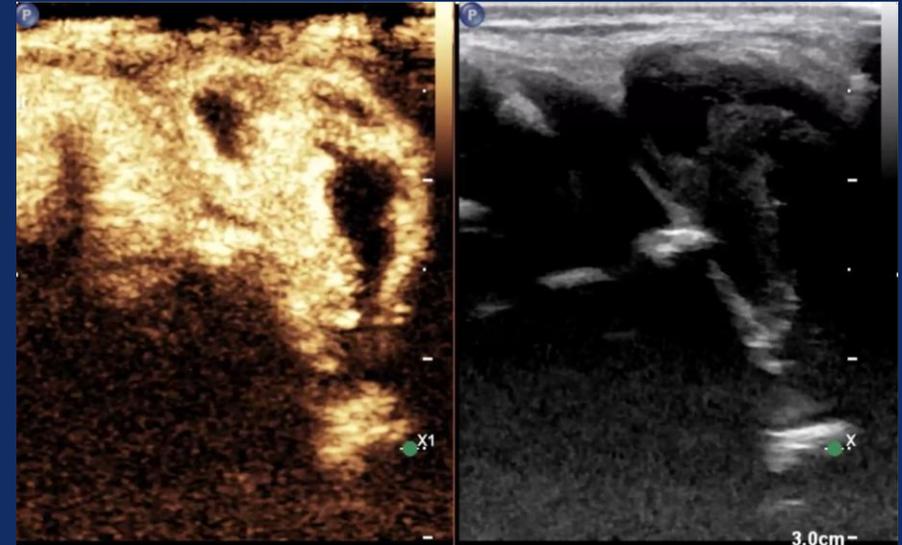
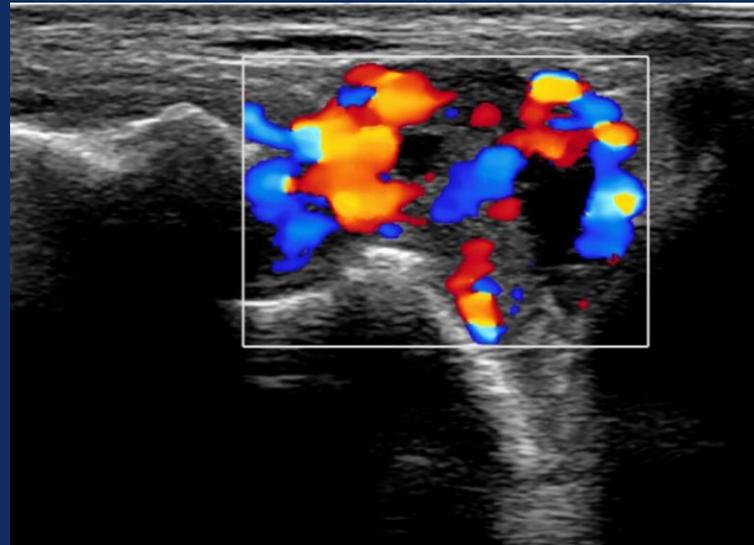
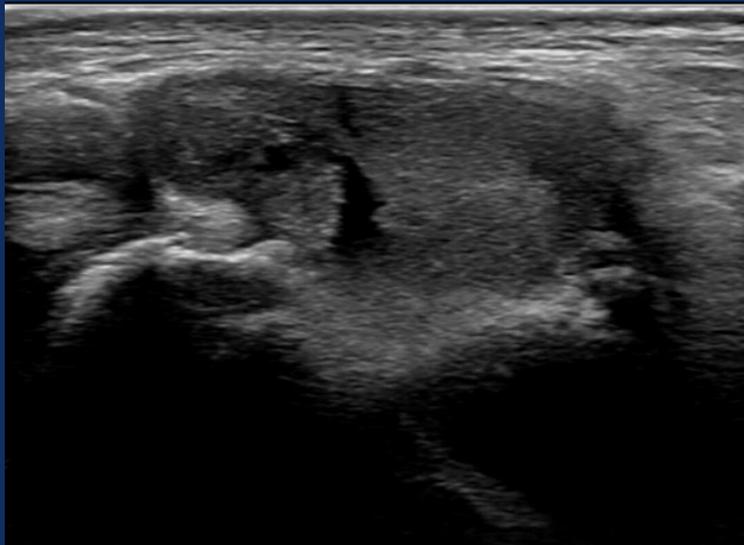
# Hlezno ventrálně

- Ventrální recesus



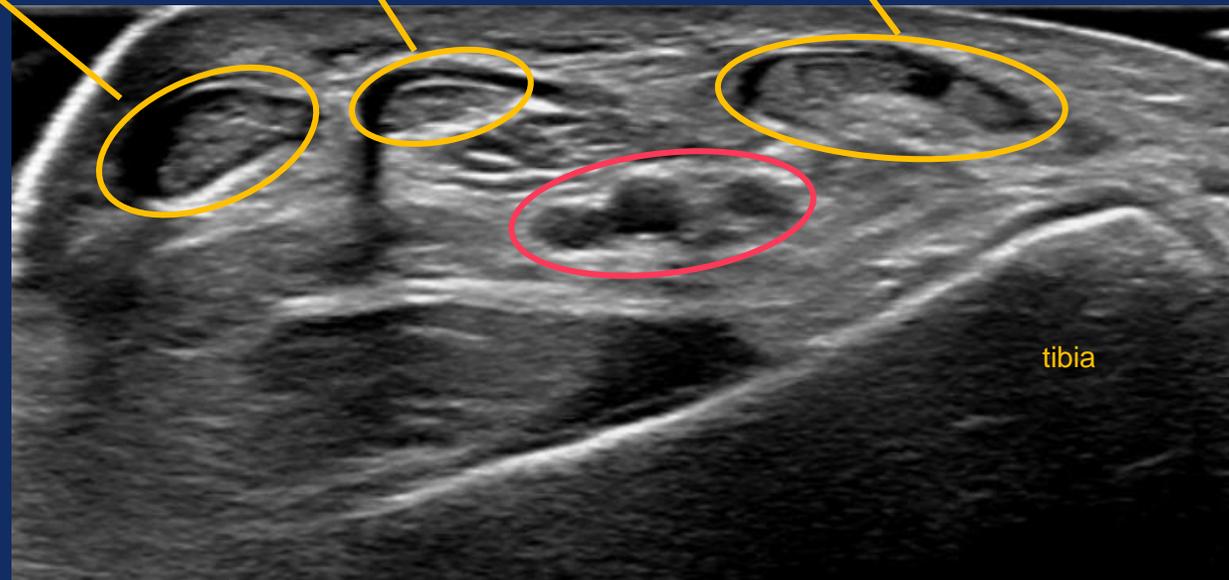
# Hlezno ventrálně

- Ventrální recesus se zmnoženou a vaskularizovanou výstelkou v rámci dg. revmatoidní artritidy



# Hlezno ventrálně

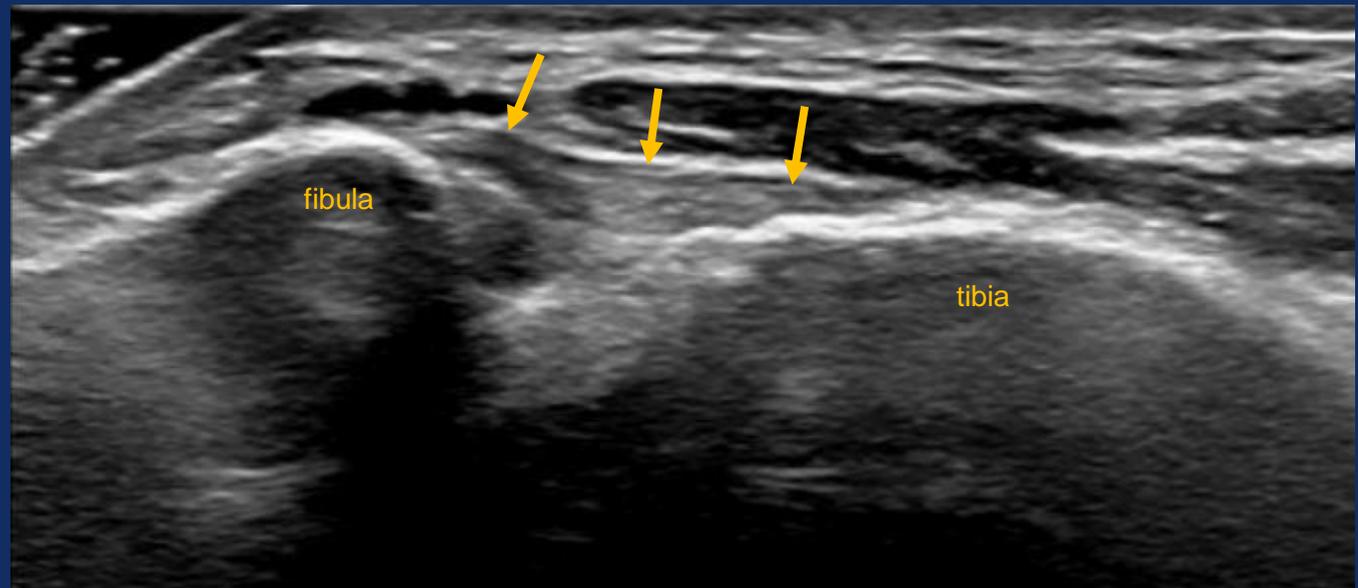
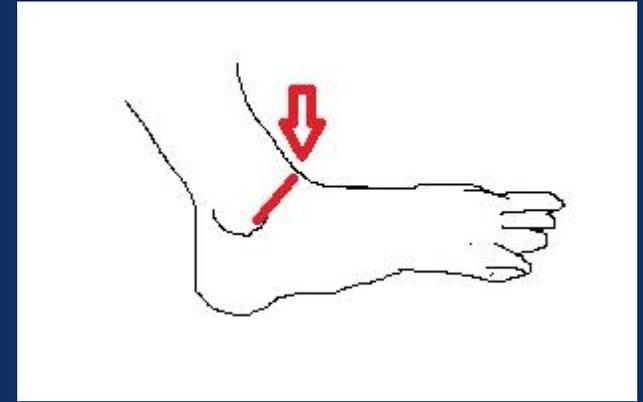
- Extensor retinaculum
- M. extensor digitorum longus
- M. extensor hallucis longus
- M. tibialis ant.



<https://ultrasoundpaedia.com/ankle-normal/>

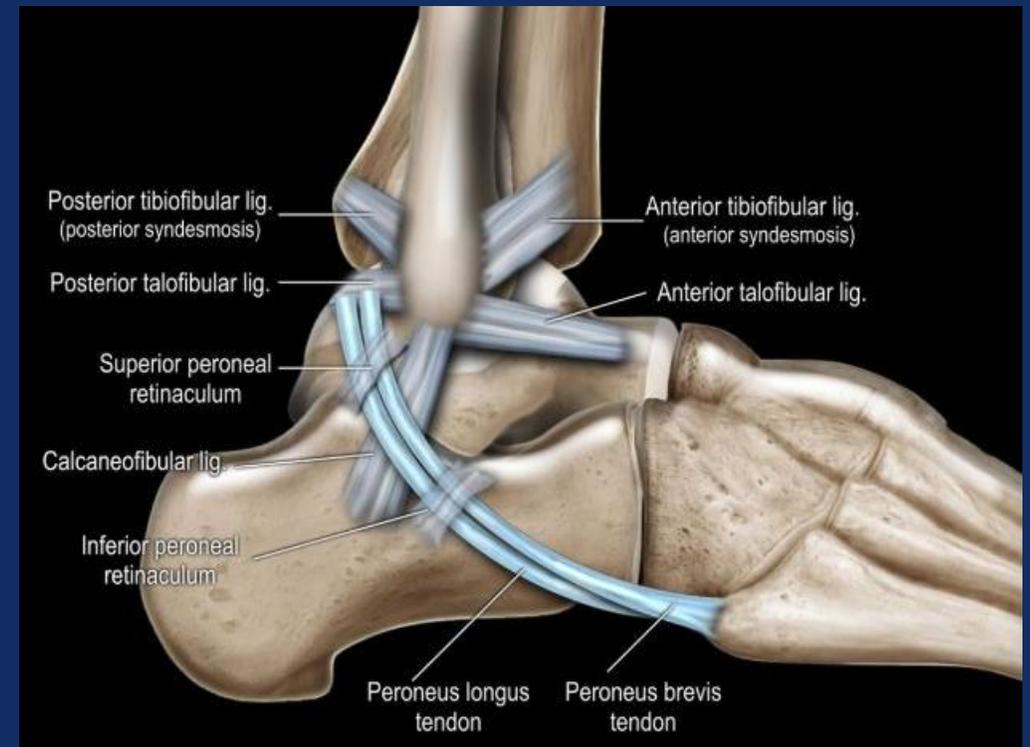
# Hlezno ventrálně

- Lig. tibiofibulare ant.



# Hlezno laterálně

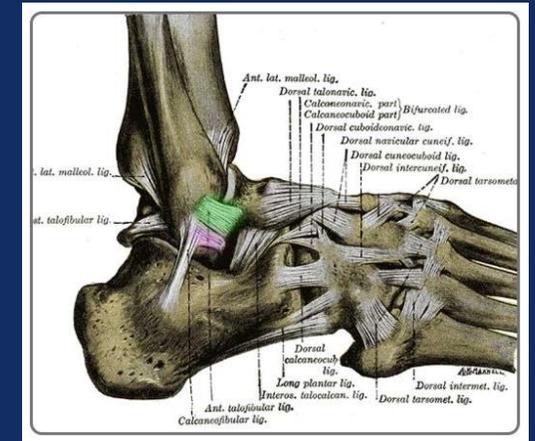
- Lig. fibulotalare anterior (LFTA)
- Lig. fibulocalcaneale
- M. peroneus longus
- M. peroneus brevis



<https://radiologyassistant.nl/musculoskeletal/ankle/mri-examination#ligaments-deltoid-ligament>

# Hlezno laterálně

- Lig. fibulotalare anterior (LFTA)

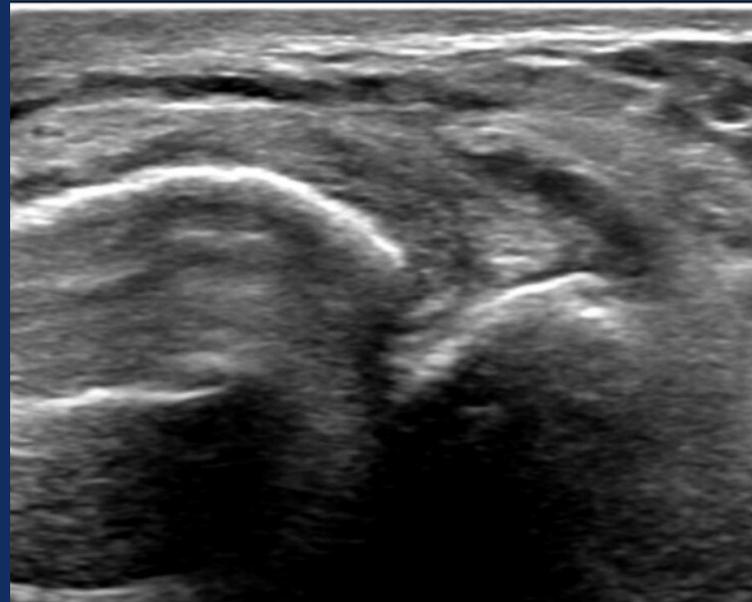


<https://ultrasoundpaedia.com/ankle-normal/>



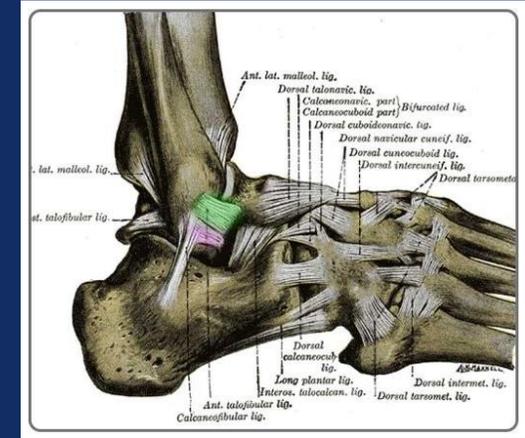
# Hlezno laterálně

- Ruptura LFTA

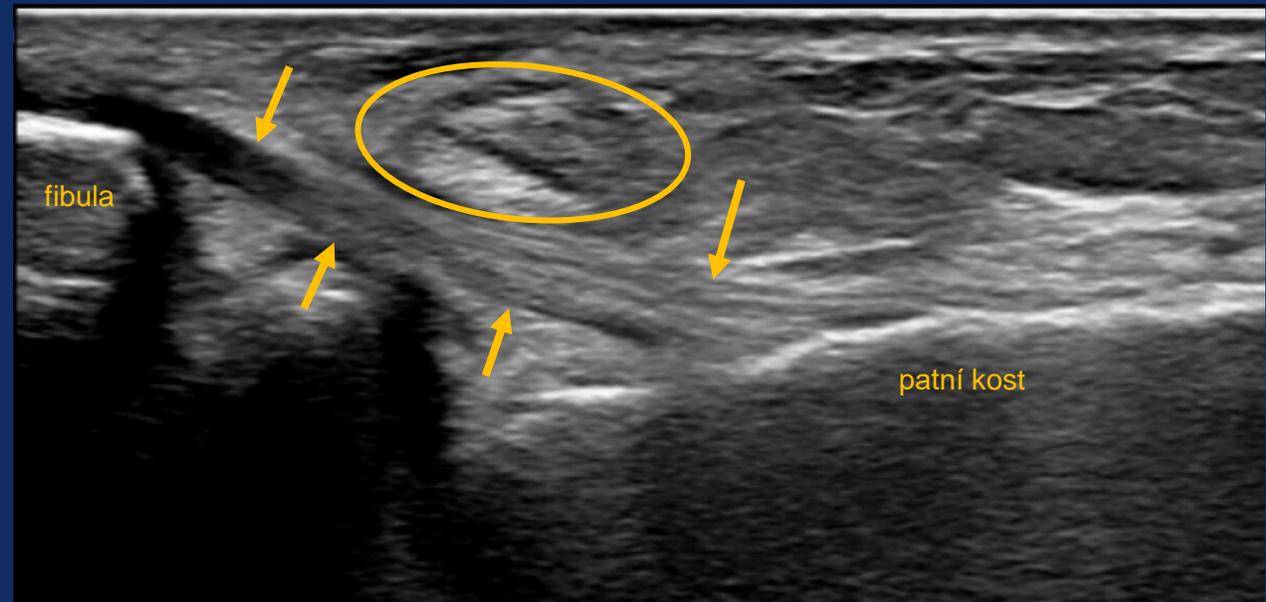


# Hlezno laterálně

- Lig. fibulocalcaneale

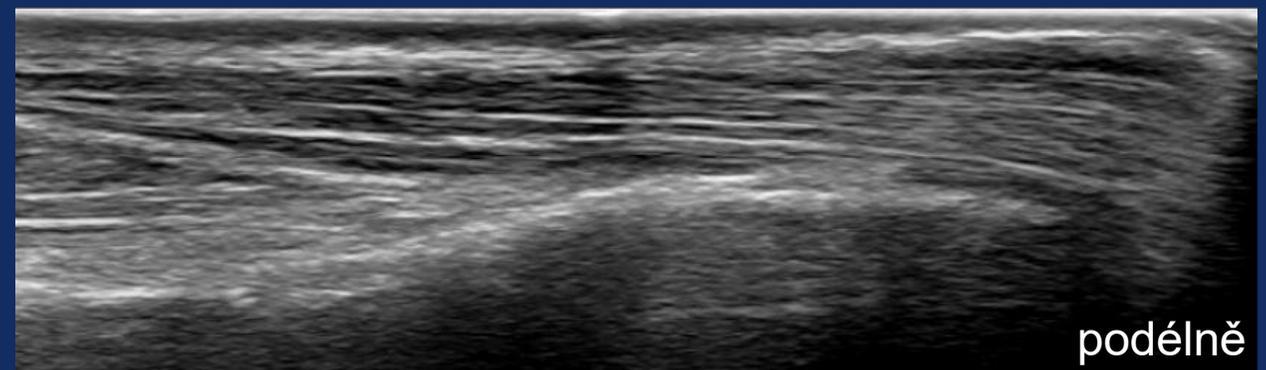
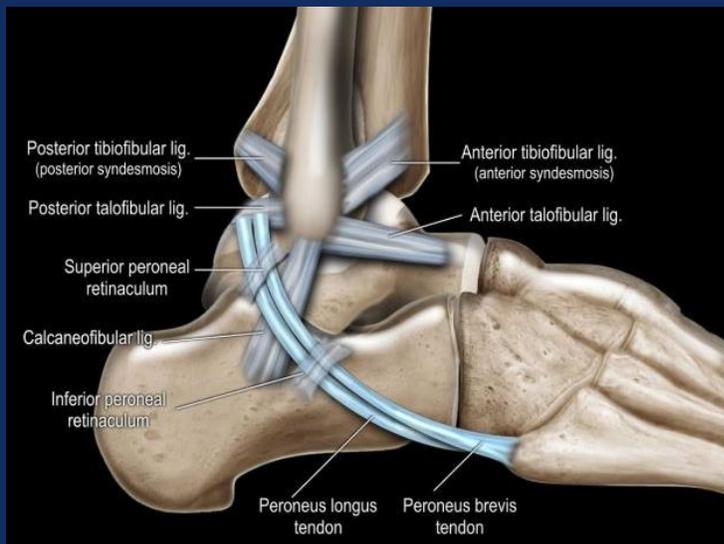


<https://ultrasoundpaedia.com/ankle-normal/>



# Hlezno laterálně

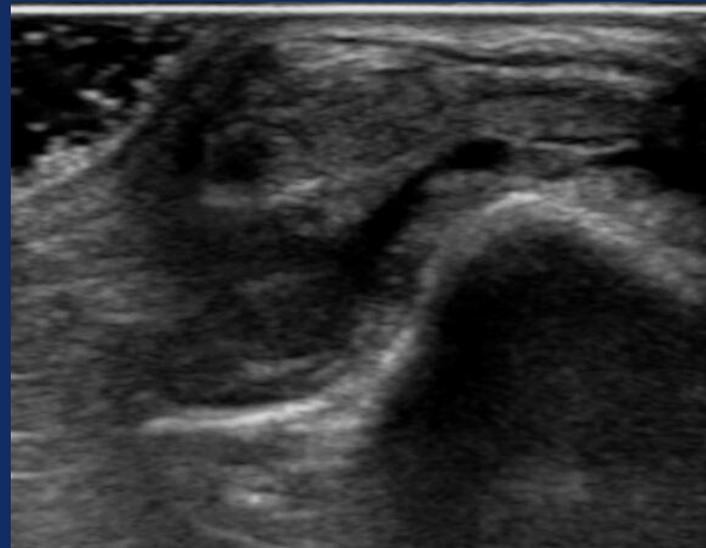
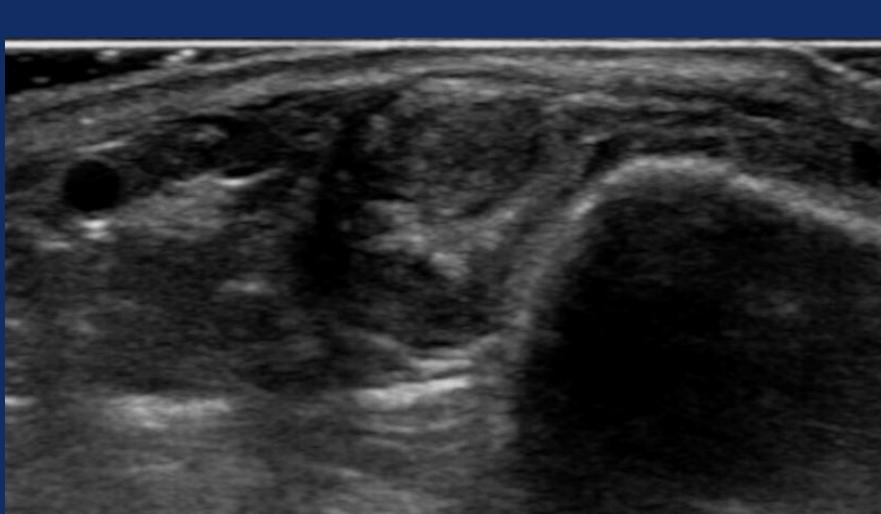
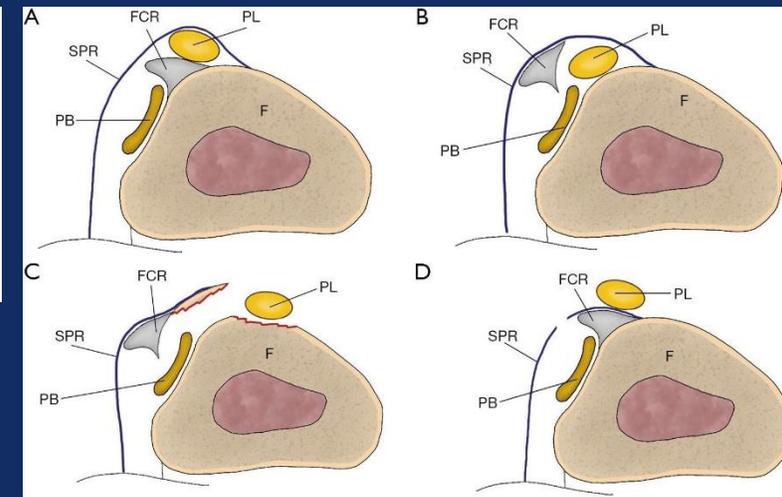
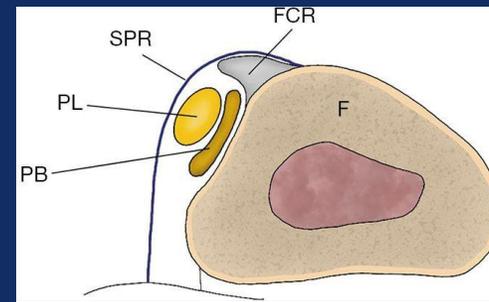
- M. peroneus longus
- M. peroneus brevis



<https://radiologyassistant.nl/musculoskeletal/ankle/mri-examination#ligaments-deltoid-ligament>

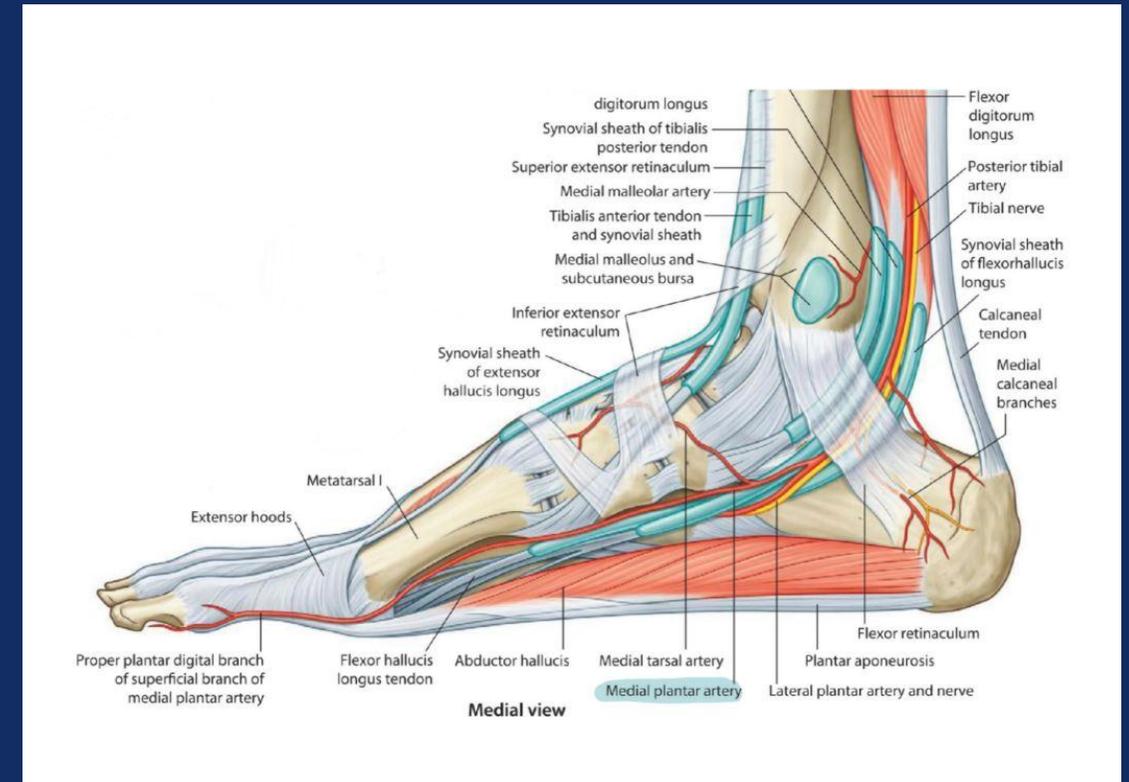
# Hlezno laterálně

- Luxace šlach peroneů při poranění retinakula
- Dynamické vyšetření
- Klasifikace dle Odena, 4 typy



# Hlezno mediálně

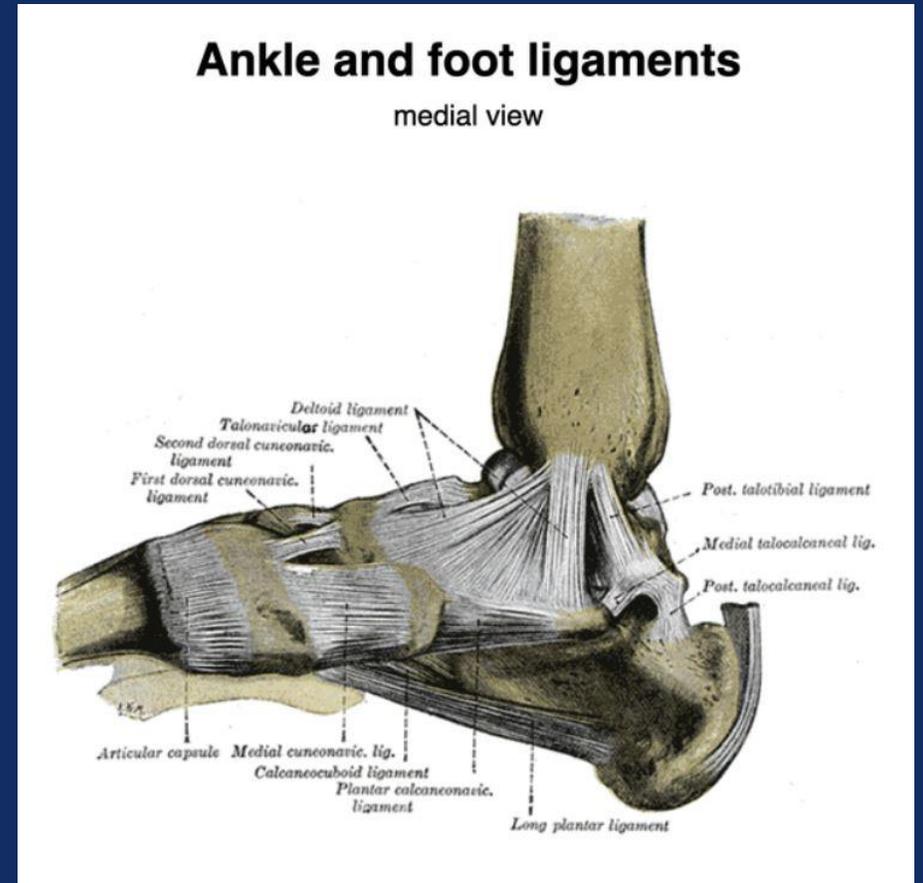
- Lig. deltoideum
- M. tibialis post.
- M. flexor digitorum longus
- M. flexor hallucis longus
- Tibiální nerv, cévy
- Retinakulum flexorum a tarzální tunel



<https://www.mickeymed.com/article/medialplantarartery>

# Hlezno mediálně

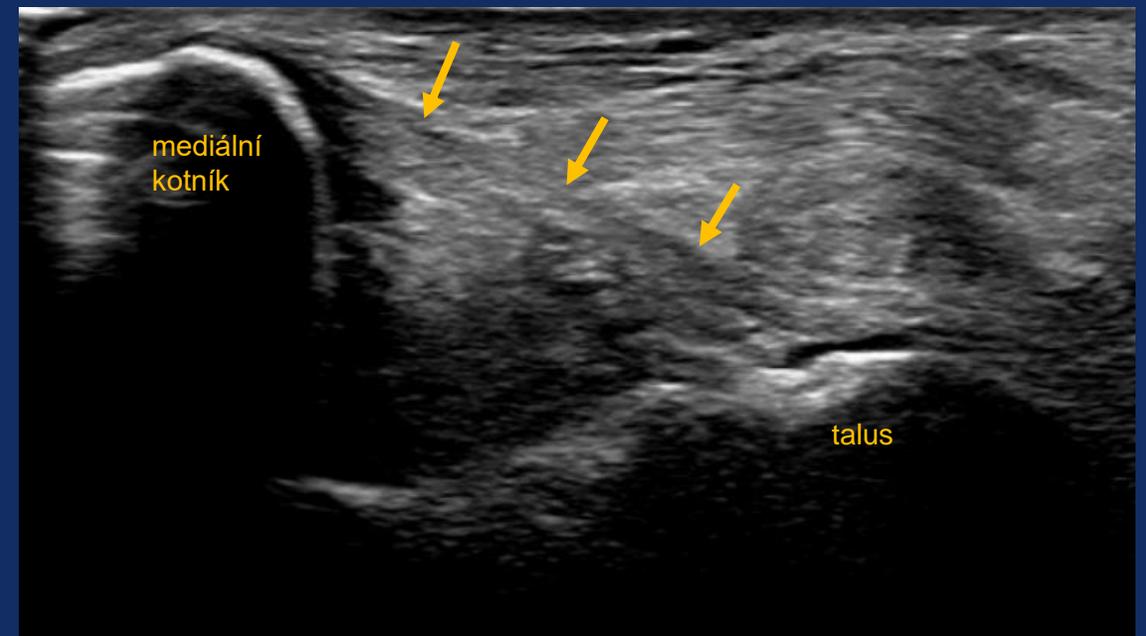
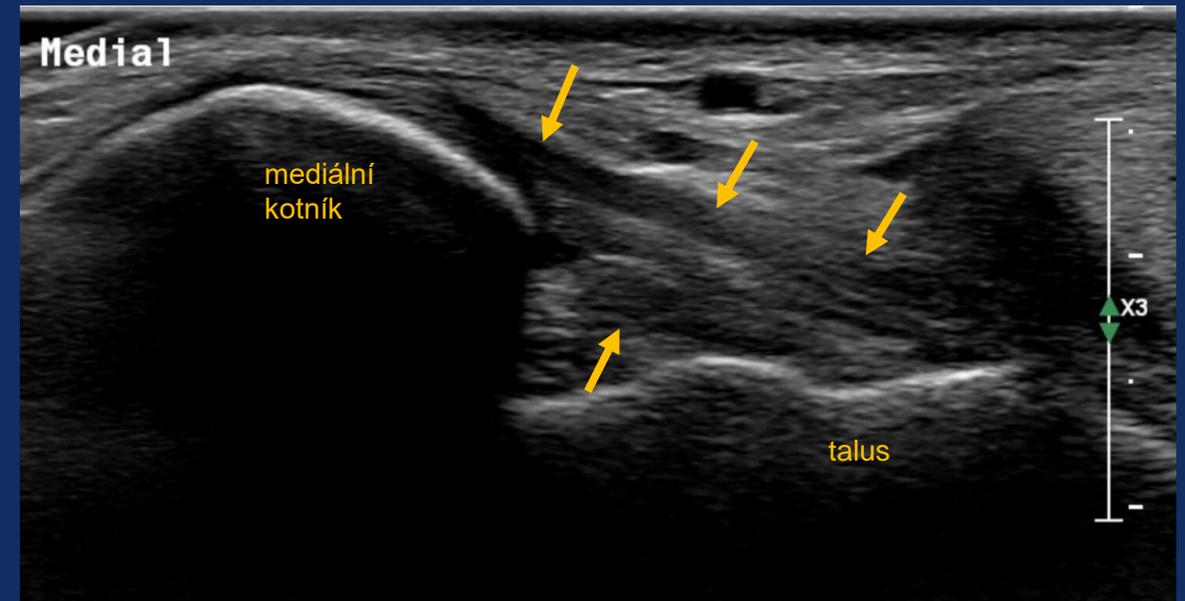
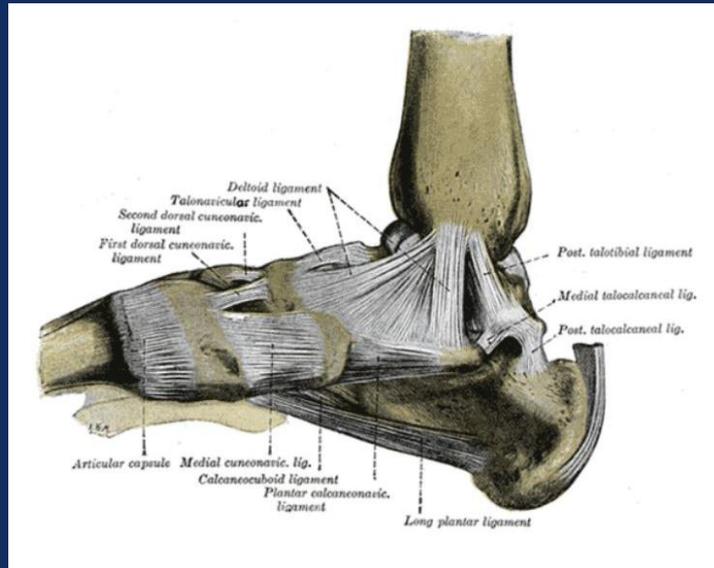
- Lig. deltoideum
- Komplex mediálních kolaterálních vazů
- Povrchová vrstva
  - tibionavicular lig.
  - tibiospring lig.
  - tibiocalcaneal lig.
  - superficial posterior tibiotalar lig.
- Hluboká vrstva
  - anterior tibiotalar lig.
  - deep posterior tibiotalar lig.



<https://radiopaedia.org/cases/ankle-and-foot-ligaments-grays-illustration>

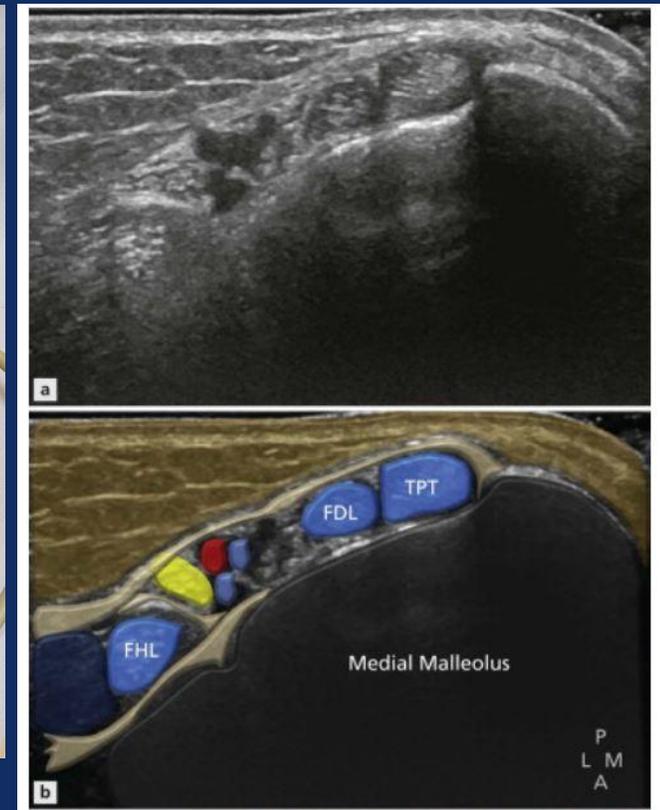
# Hlezno mediální

- Lig. deltoideum

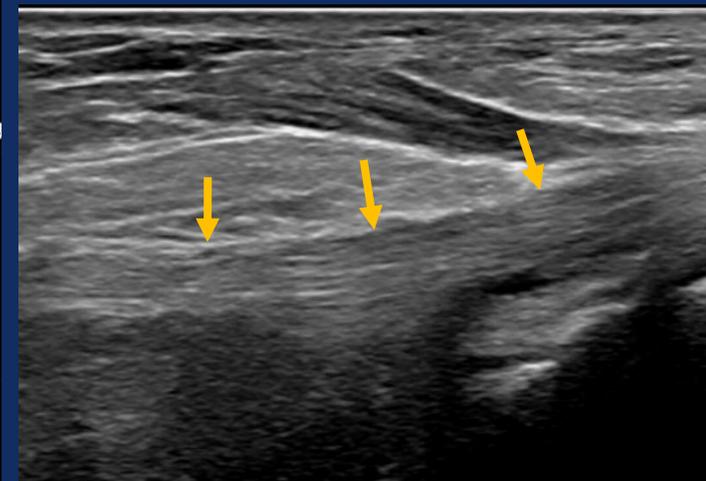


# Hlezno mediálníně

- M. tibialis post.
- M. flexor digitorum longus
- M. flexor hallucis longus

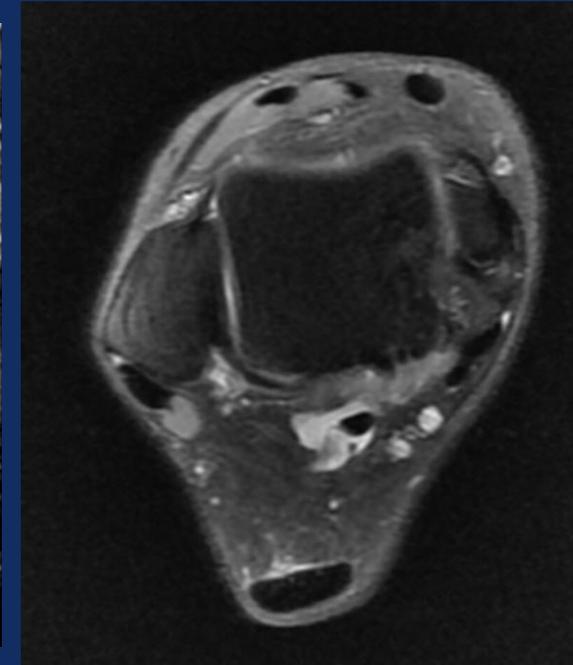
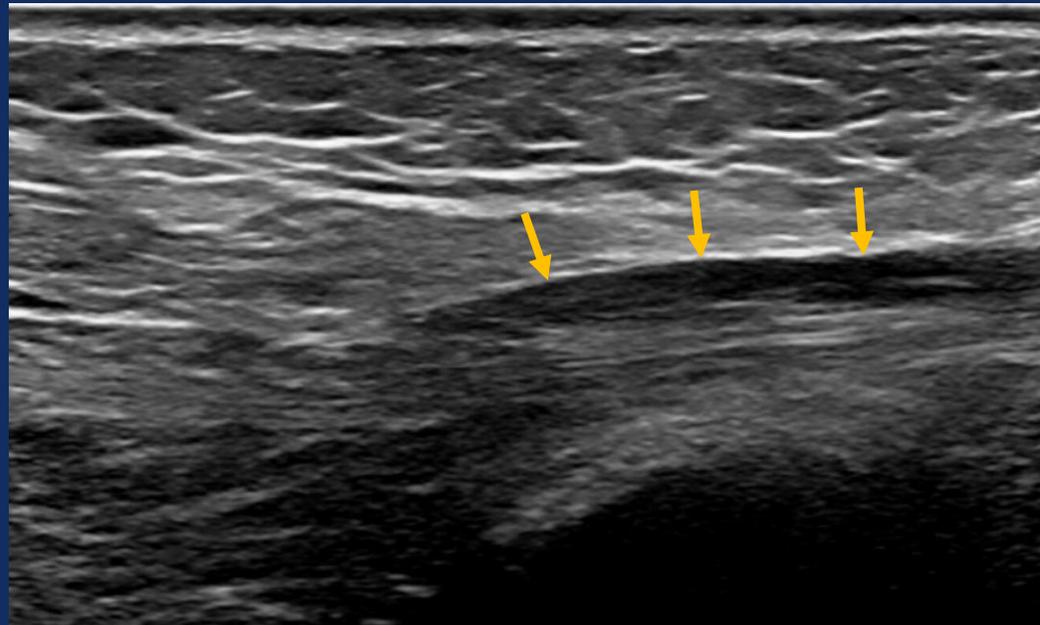
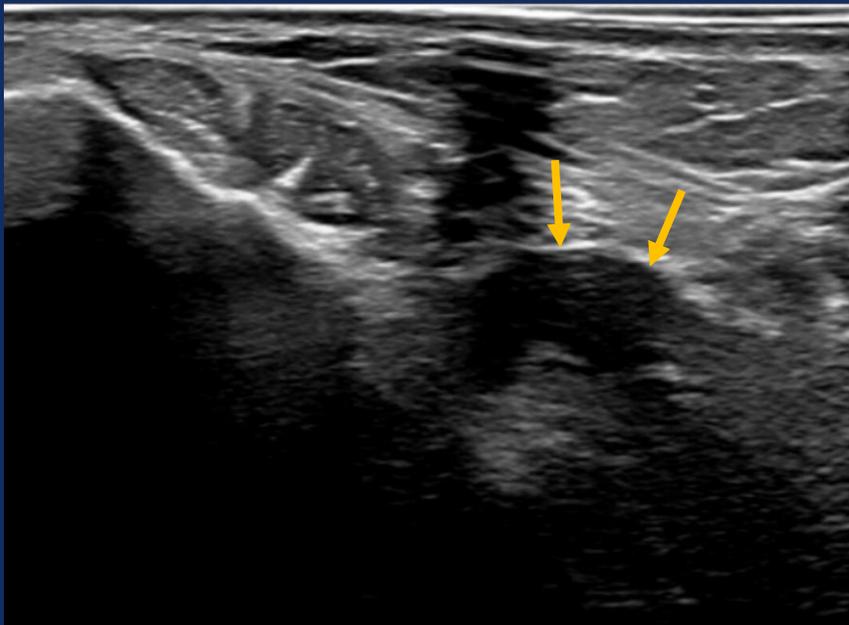


<https://radiologykey.com/ankle-joint-and-forefoot-anatomy-and-techniques-2/>



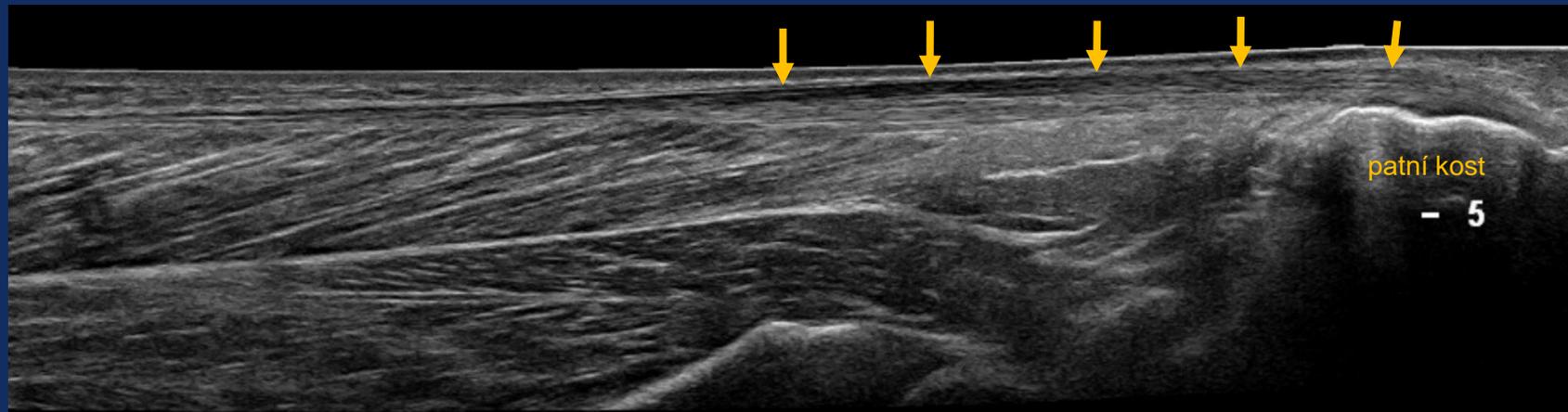
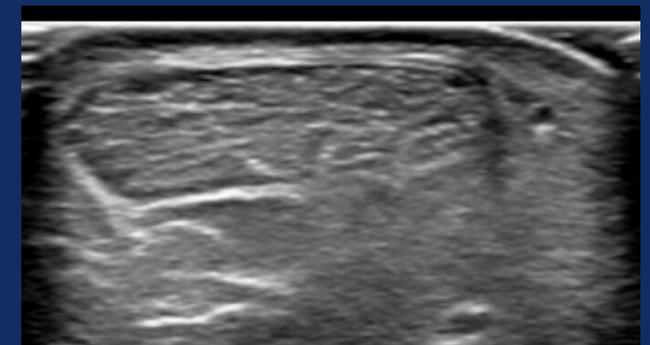
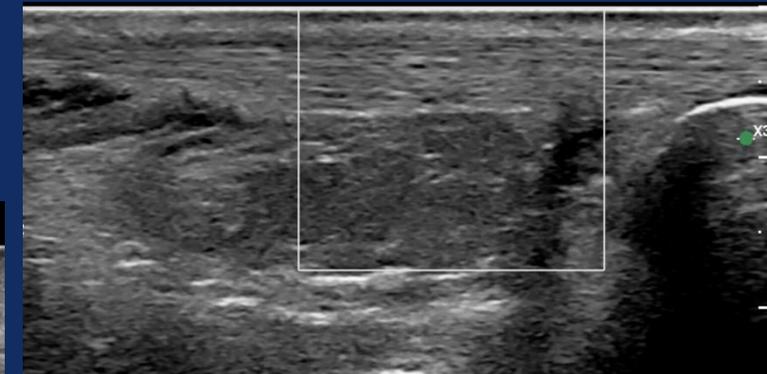
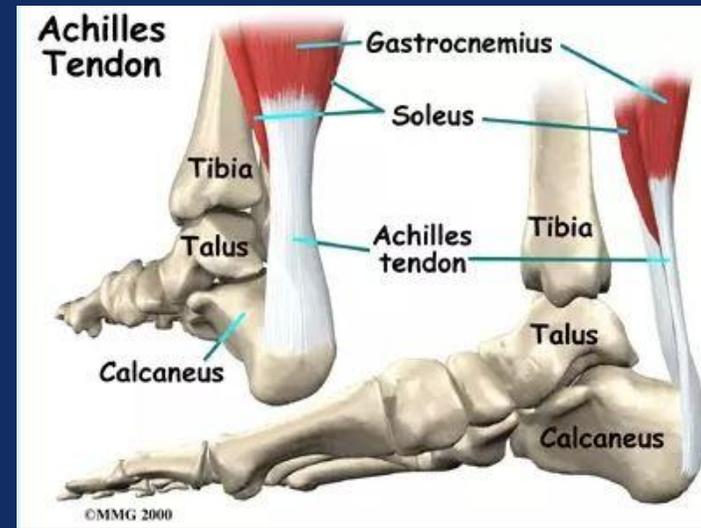
# Hlezno mediálně

- Výpotek kolem šlachy m. flexor hallucis longus

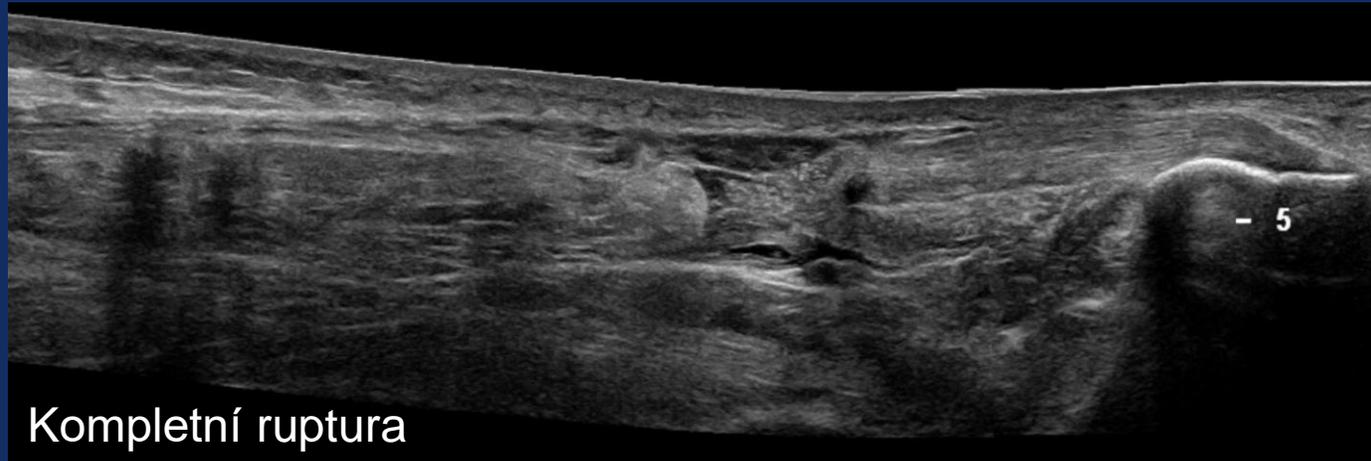


# Hlezno dorzálně

- Achillova šlacha
- Retrokalkaneální bursa
- Kager tuk. těleso



# Patologie – Achillova šlacha



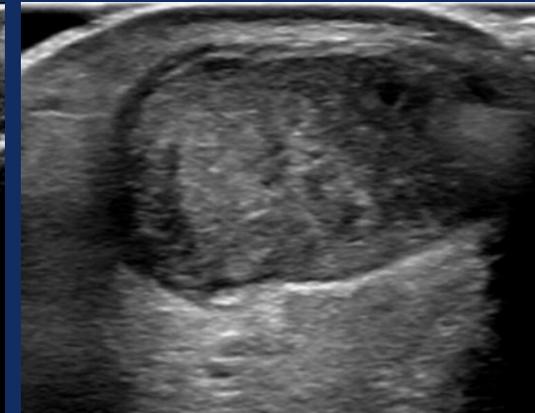
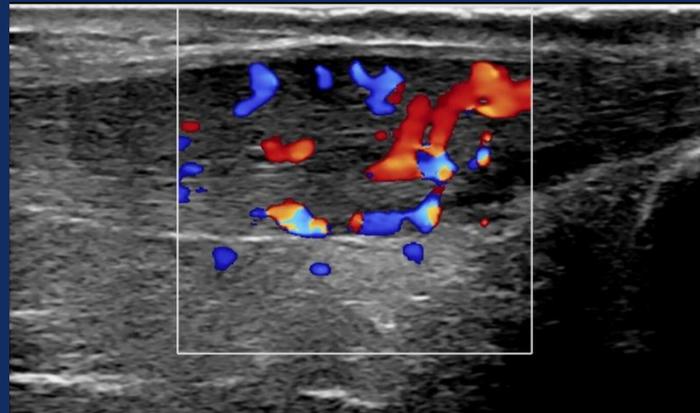
Kompletní ruptura



Parciální ruptura

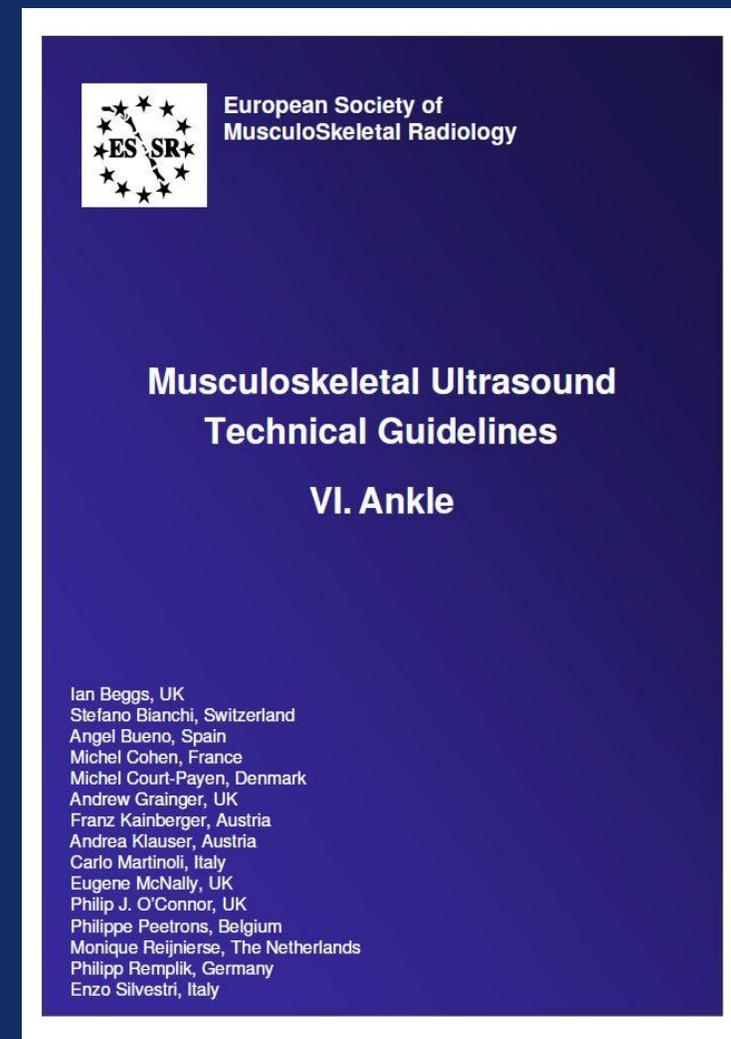


Tendinitis

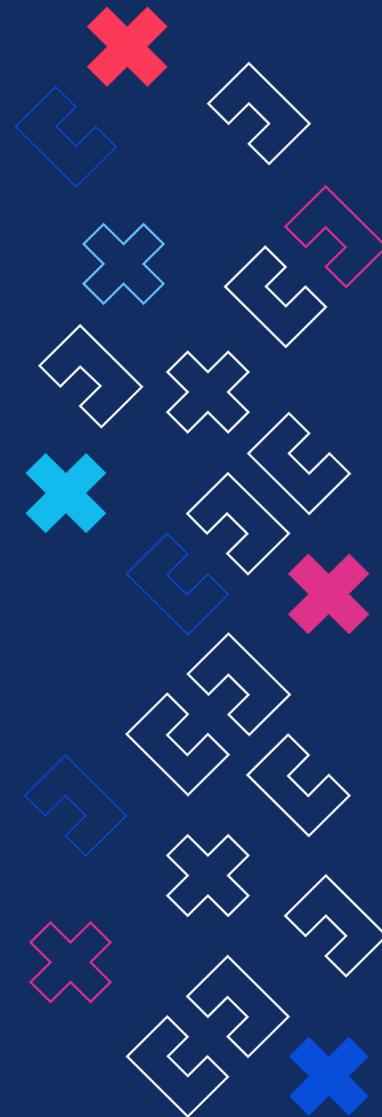


# Na závěr

- Jednoduché a dostupné vyšetření
- ESSR
- <https://essr.org/content-essr/uploads/2016/10/ankle.pdf>



**Děkuji za pozornost**



# Kontaktní údaje



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532 233 007