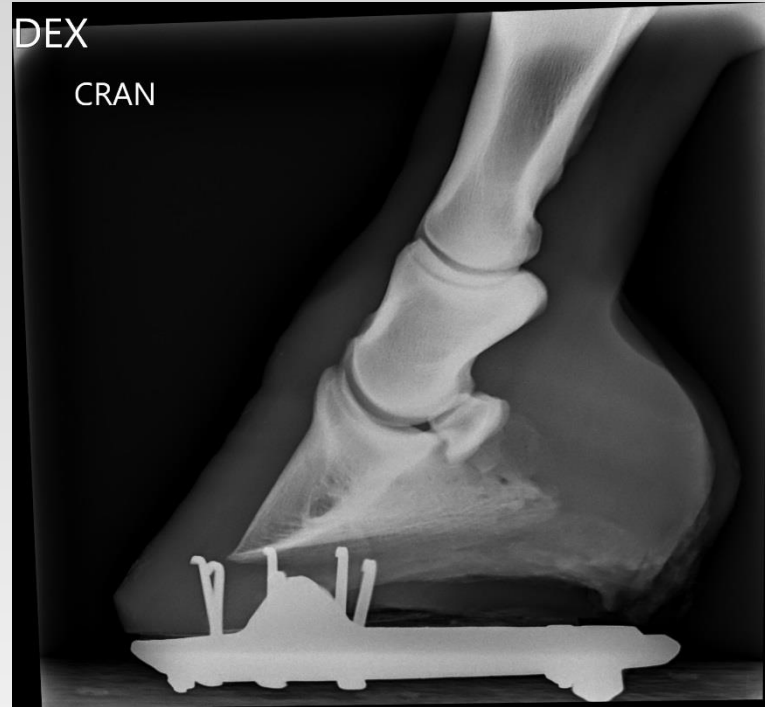


# Röntgen

- Röntgen
  - Röntgenputkessa elektronit katodilta anodille
  - Tuloksena ionisoivaa säteilyä joka vastaanotetaan digitaalisesti
- Katodin lämpötila kohotessa elektronien määrä kohoaa - mAs
- Säteiden läpäisevyys – energian (kV) kasvaessa, läpäisykyky paranee
- Esim. lyijy absorboi hyvin – käytetään suojavaatteena



# Röntgensäteiden läpäisevyys

- Nykyään digitaaliset kuvantamislaitteet helpottaneet kuvantamista ja osittain parantaneet kuvien laatua
- Röntgensäteiden absorboituminen riippuu kudoksesta ja kudoksen paksuudesta
  - Luu absorboi enemmän röntgensäteitä kuin pehmytkudokset



# Kavion valmistaminen röntgen kuvausta varten

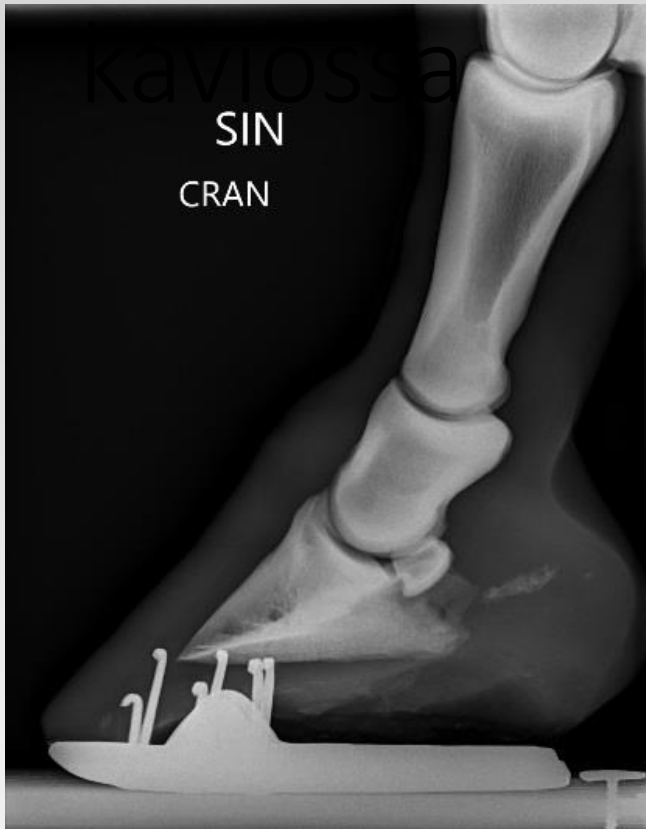


# Puutteet kavion puhdistuksessa vaikuttavat kuvaan

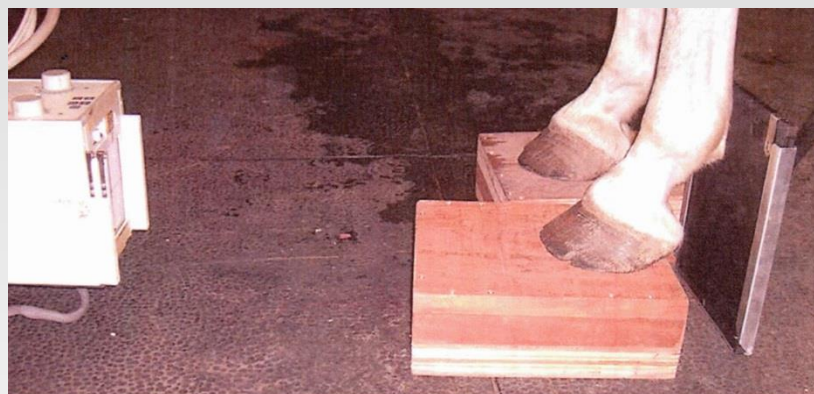
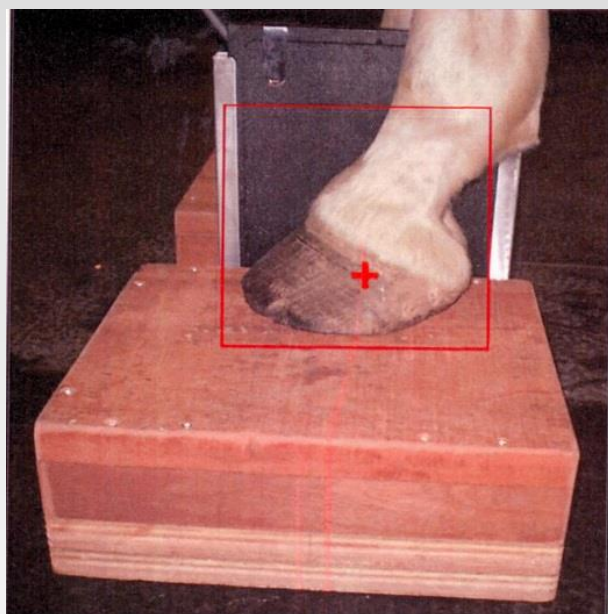




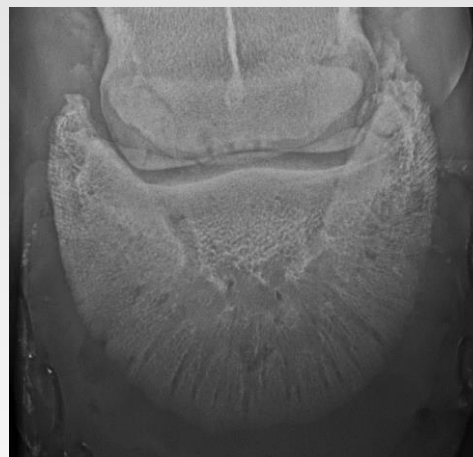
# Vieras materiaali (esim. hiekka)



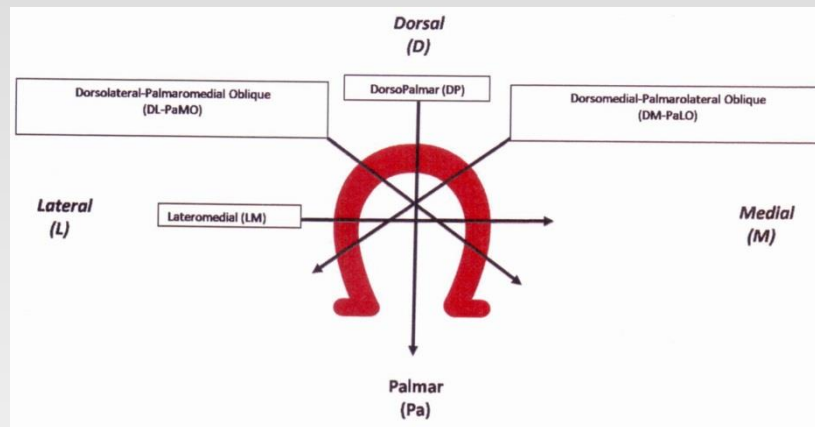
# Röntgenkuvien laatuun vaikuttaa oleellisesti kuvaustapa – kollimointi, suunta



# Röntgenkuvien laatu



# Kavion röntgenkuvaus

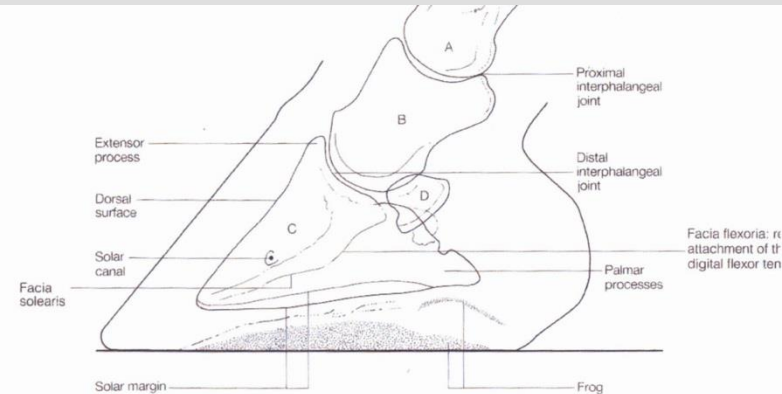
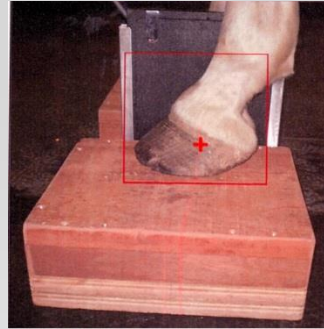


# Alaraajan sivukuva (LM)





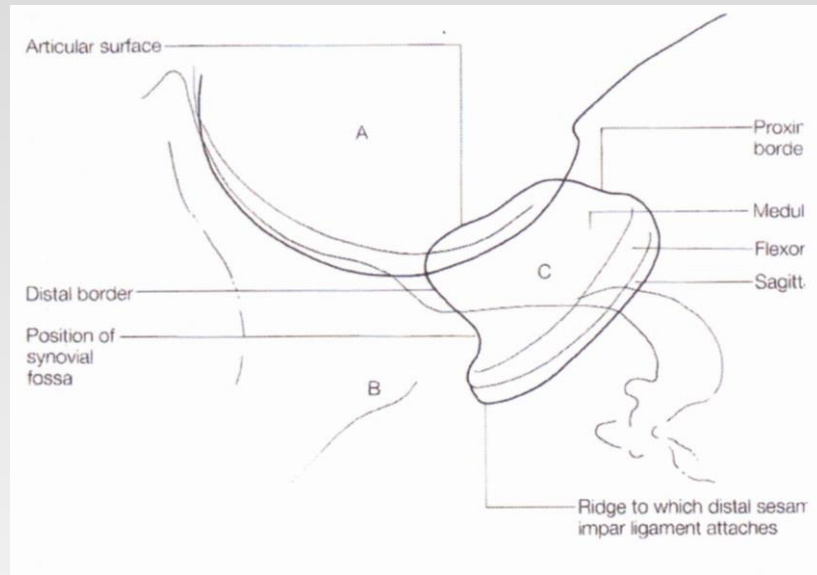
# Kavion sivukuva



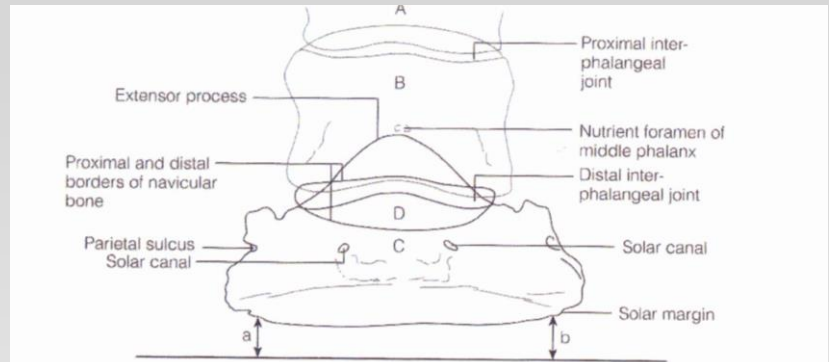
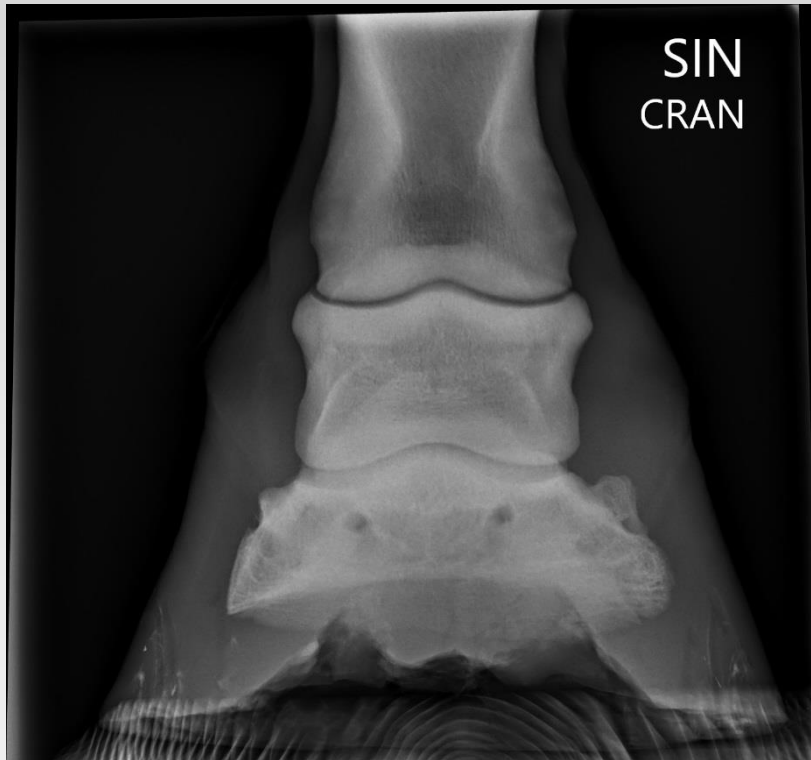
**Figure 3.8(a)** Well positioned lateromedial radiographic view and diagram of a normal adult foot. A = proximal phalanx, B = middle phalanx, C = distal phalanx, D = navicular bone. The toe of the foot has been cut off.



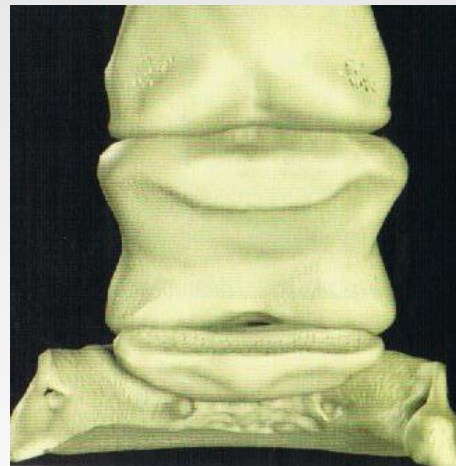
# Kavion sivukuva – sädeluu, kavionivel



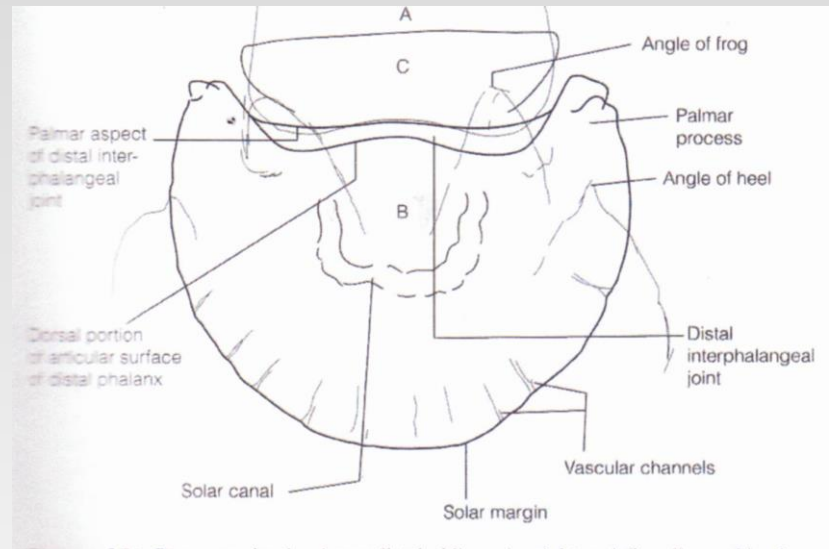
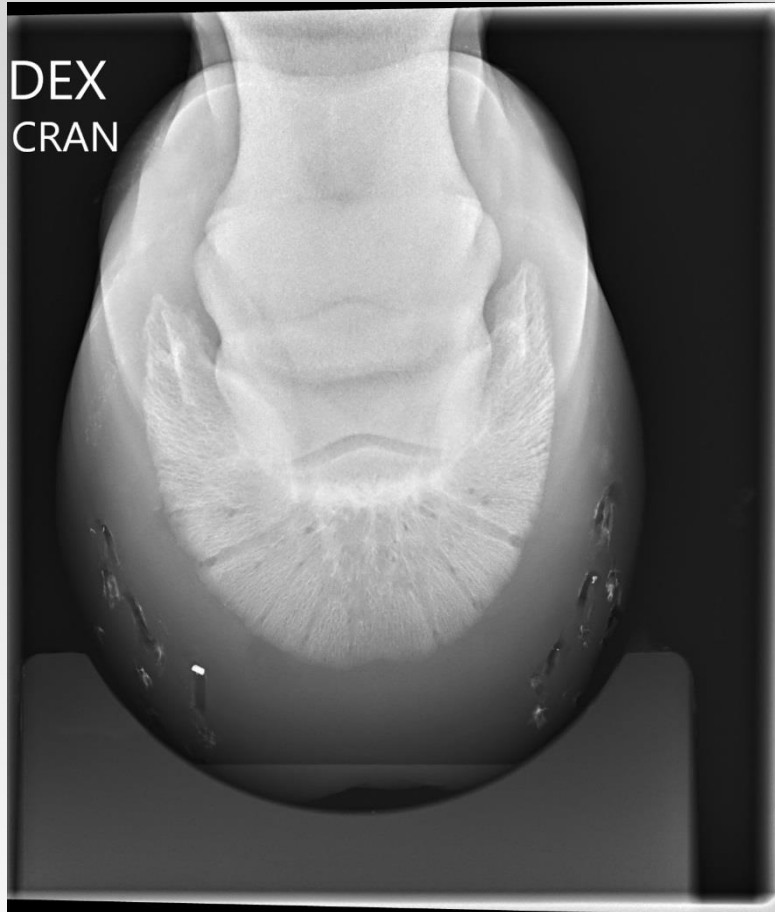
# Kaviokuva edestä



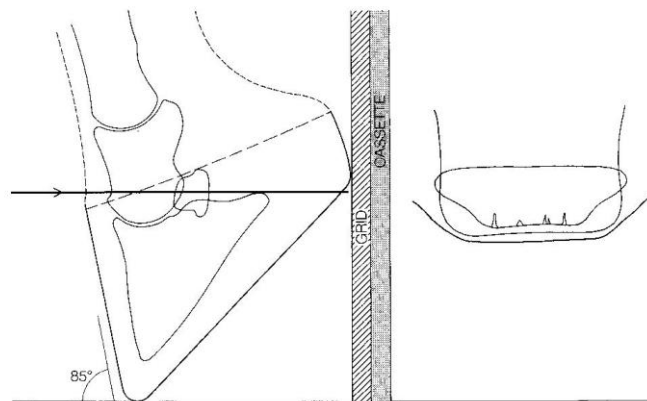
**Figure 3.8(c)** Dorsopalmar radiographic view and diagram of a normal adult foot. The radiographic image has been collimated so that the medial and lateral extremities of the hoof wall cannot be seen. Medial is to the left. The sole is thicker medially than laterally. Arrows a and b indicate the height between the distal border of the distal phalanx and the ground surface. A = proximal phalanx, B = middle phalanx, C = distal phalanx, D = navicular bone.



# Kavioluukuva



# Sädeluukuva



**Figure 3.38(a)** Positioning to obtain a dorsoproximal-palmarodistal oblique view of the navicular bone (85° upright pedal view). Inset diagram shows resultant radiographic positioning of the distal border of the navicular bone proximal to the distal interphalangeal joint.

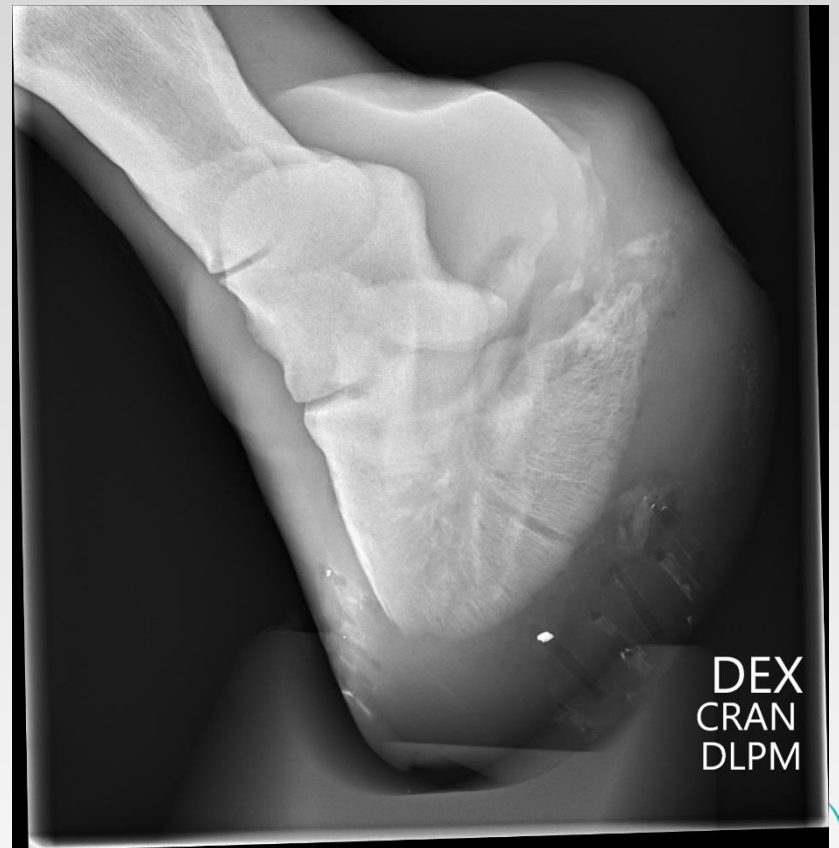
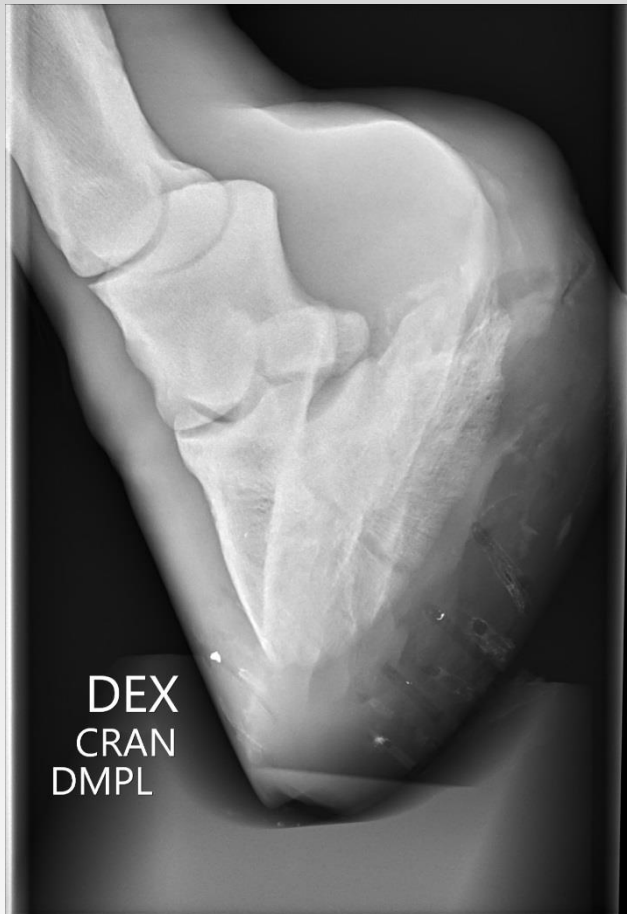


# Sädeluun skyline





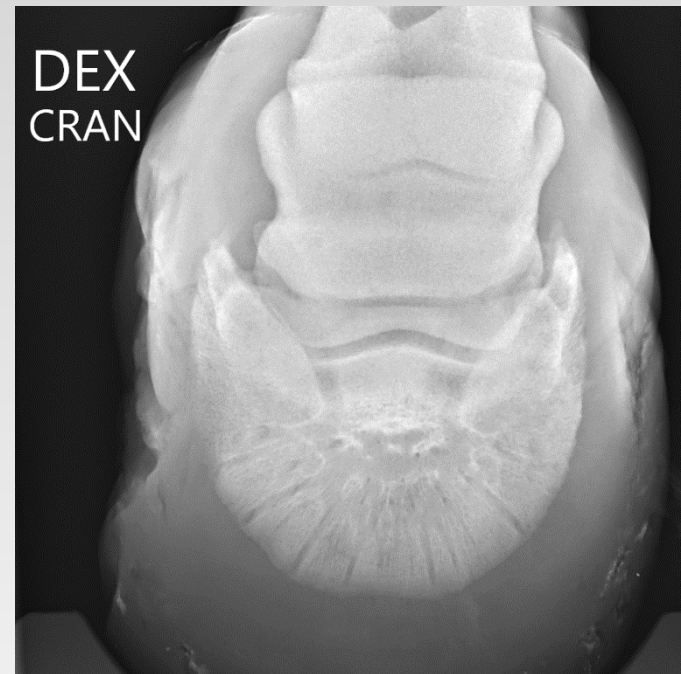
# Kavion viistokuvat



- Röntgenharva muutos esim. kaasuentelo kaviopaiseissa
- Röntgentiivismuutos esim. kalkkeuma jännevauriossa
- Nivelen, jännetupen turvotus – poikkeava harmaa ääriviiva
  - nivelneste, nivelkalvon paksuuntuminen mahdoton erottaa toisistaan



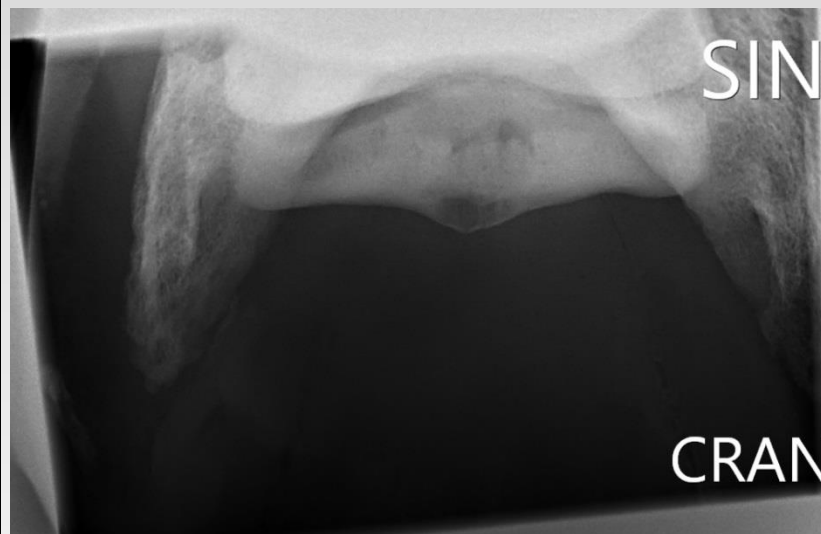
# Osteolyysi



# Osteolyysi



# Skleroosi ja osteolyysi



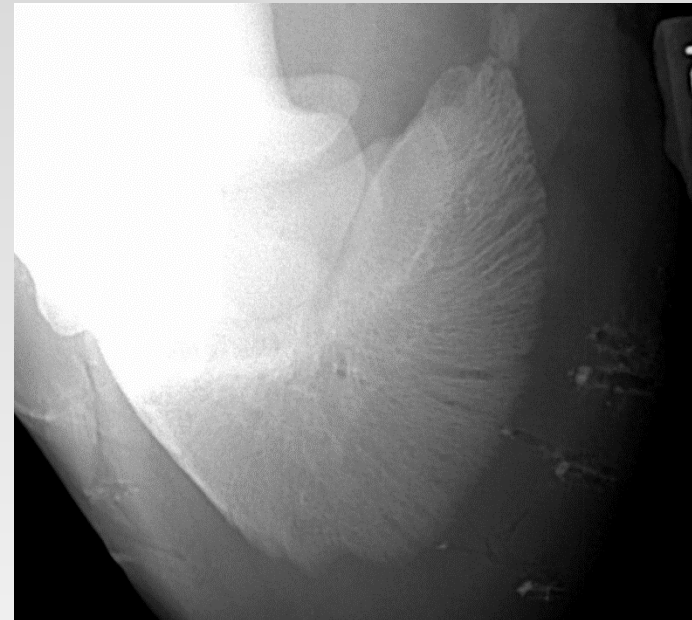
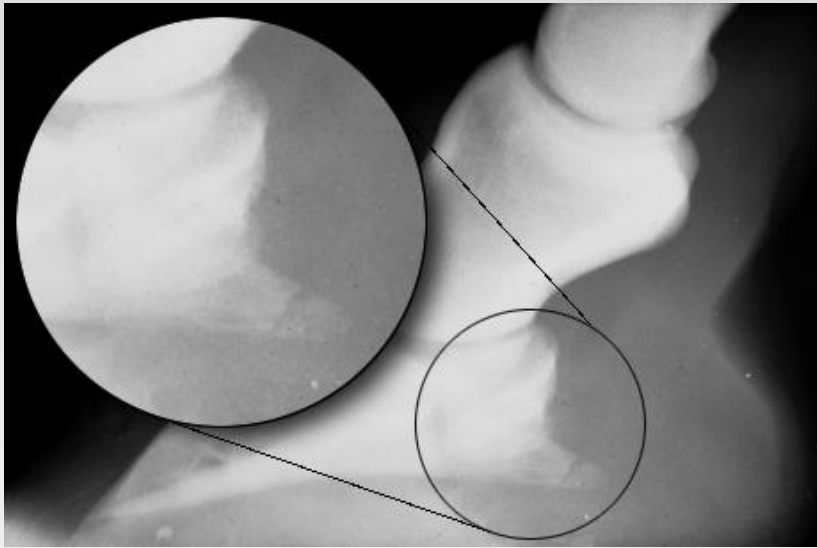
# Normaali variaatiot

- Kavioluun crena

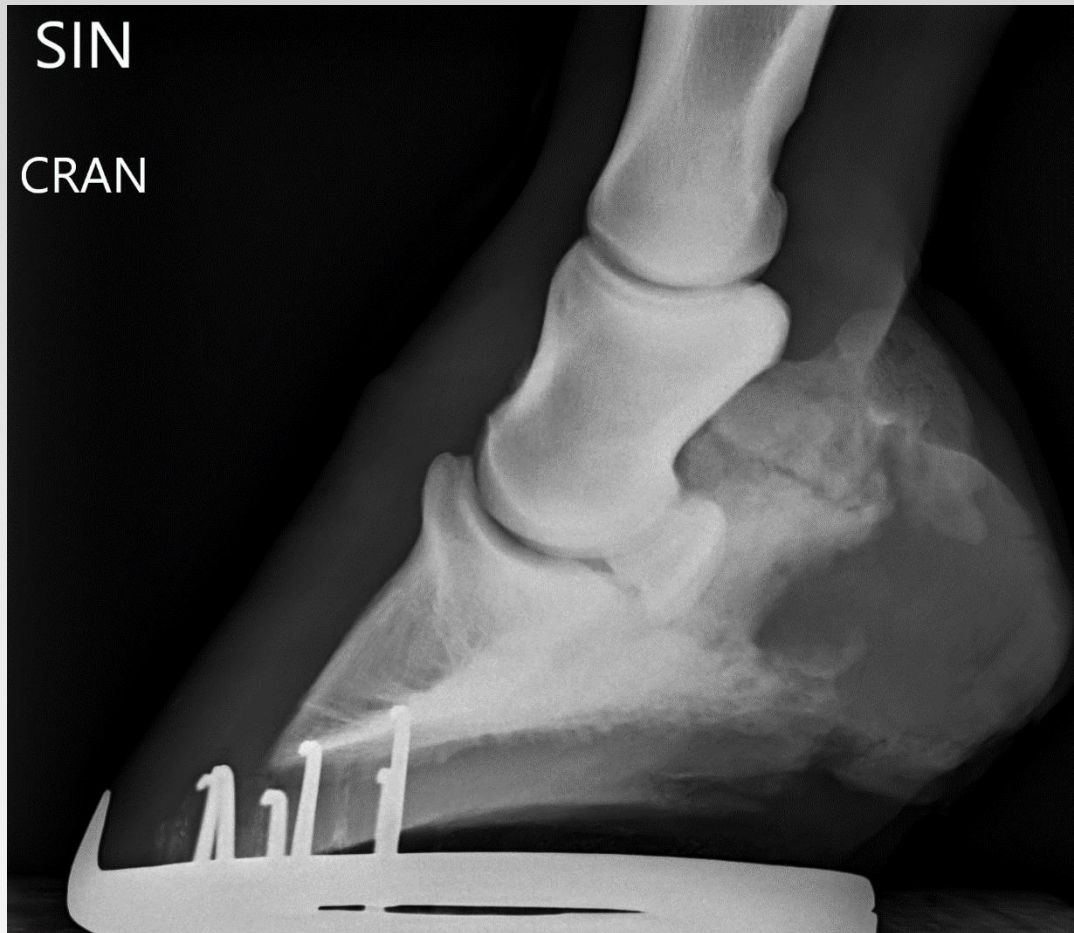




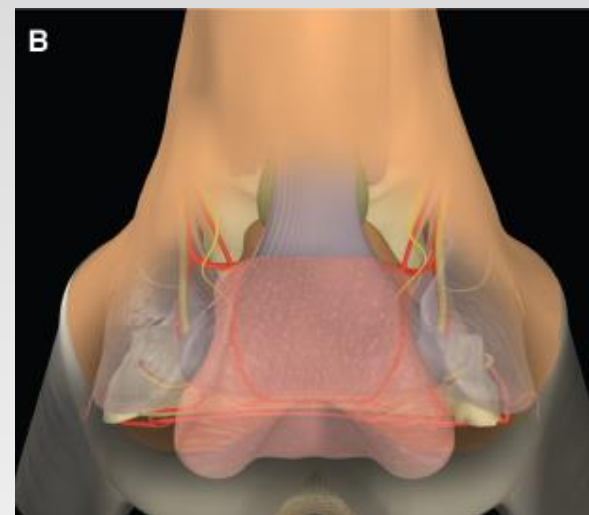
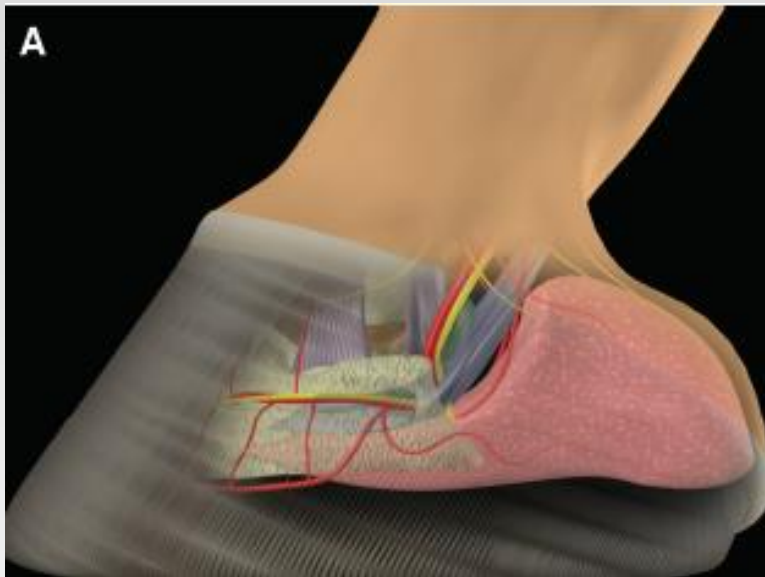
# Normaali variaatiot



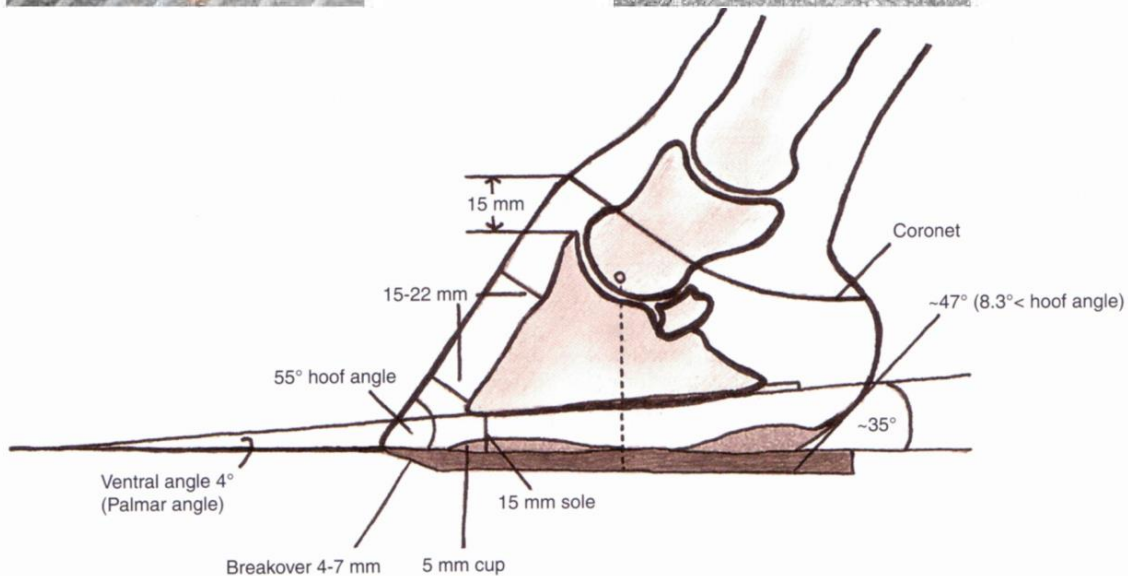
# Normaali variaatiot



# Röntgen, ultraääni ja MRI – jänteet, hermot, suonet, nivelneste, sädeluun limapussi

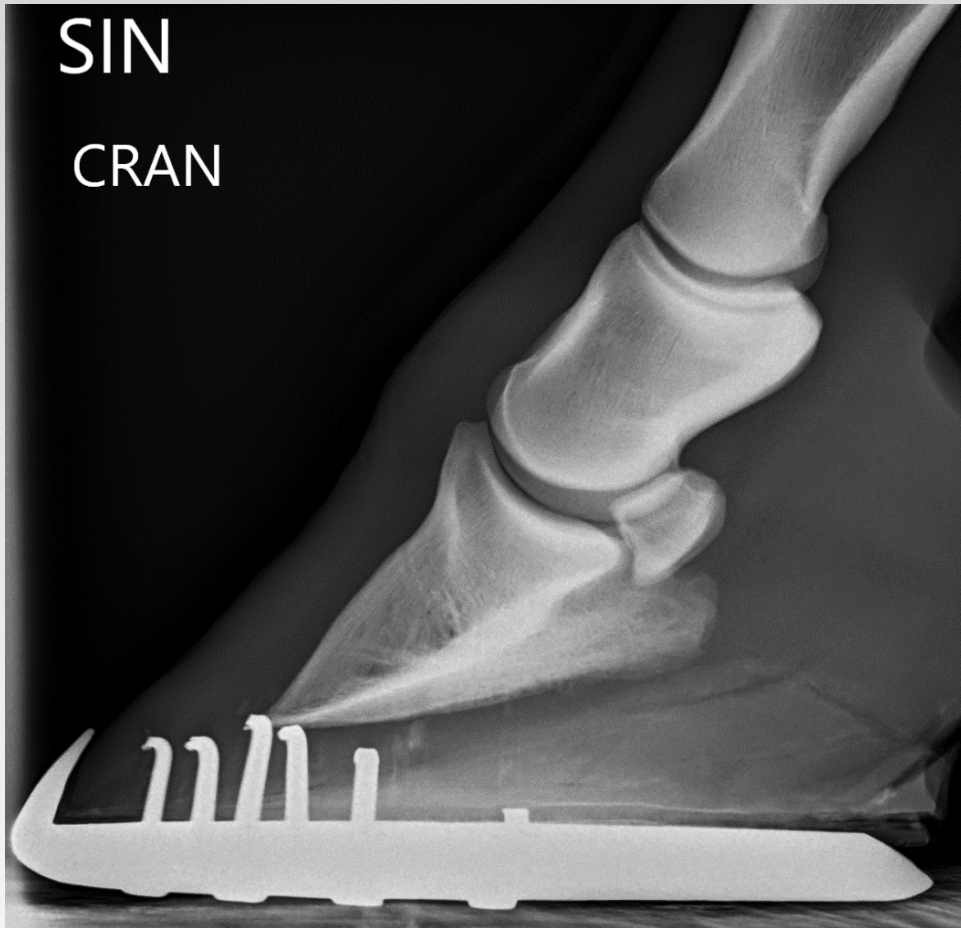


# Kavioluun kulma/ varvasakseli

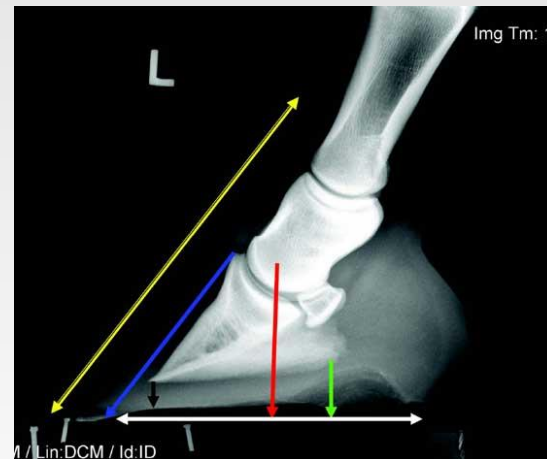
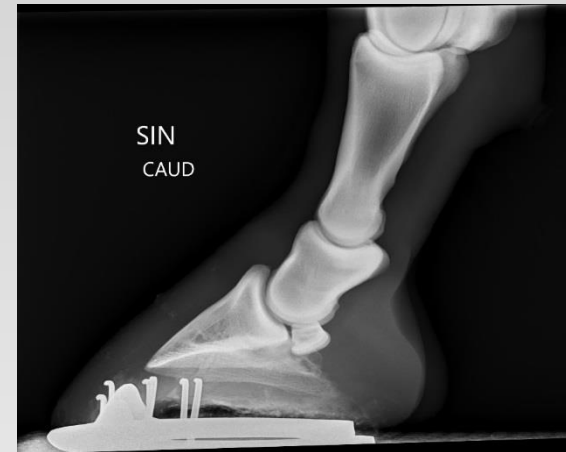




# Pitkä varvas



# Kavioluun negatiivinen kulma

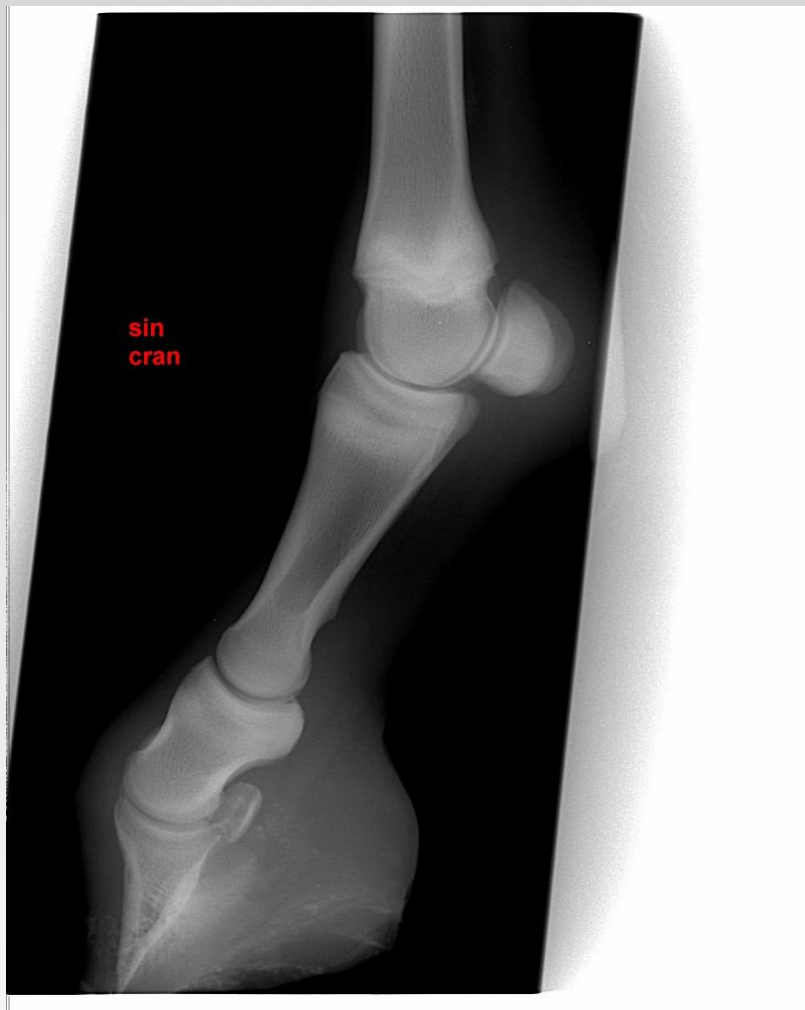




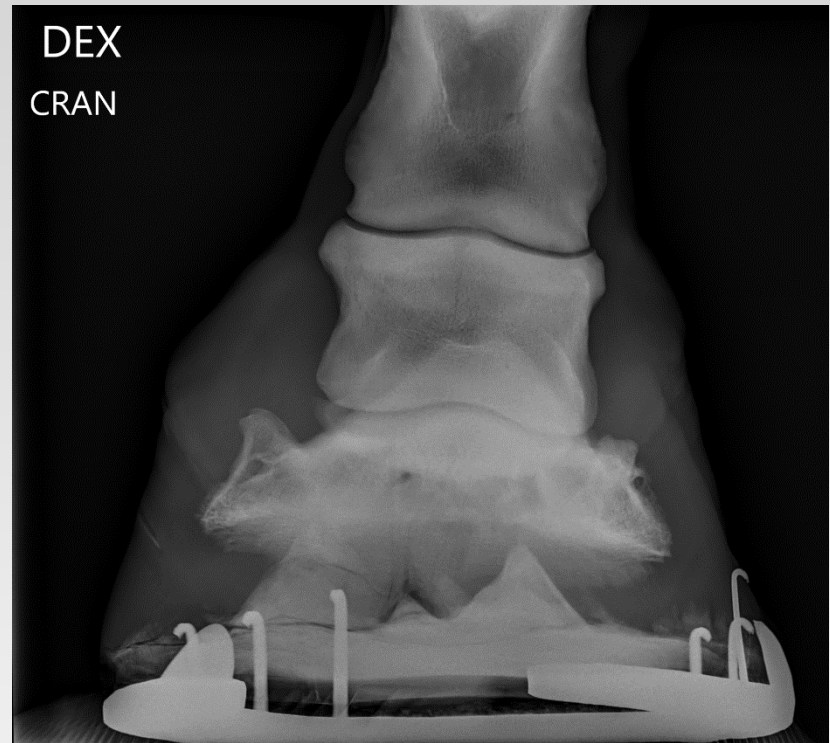
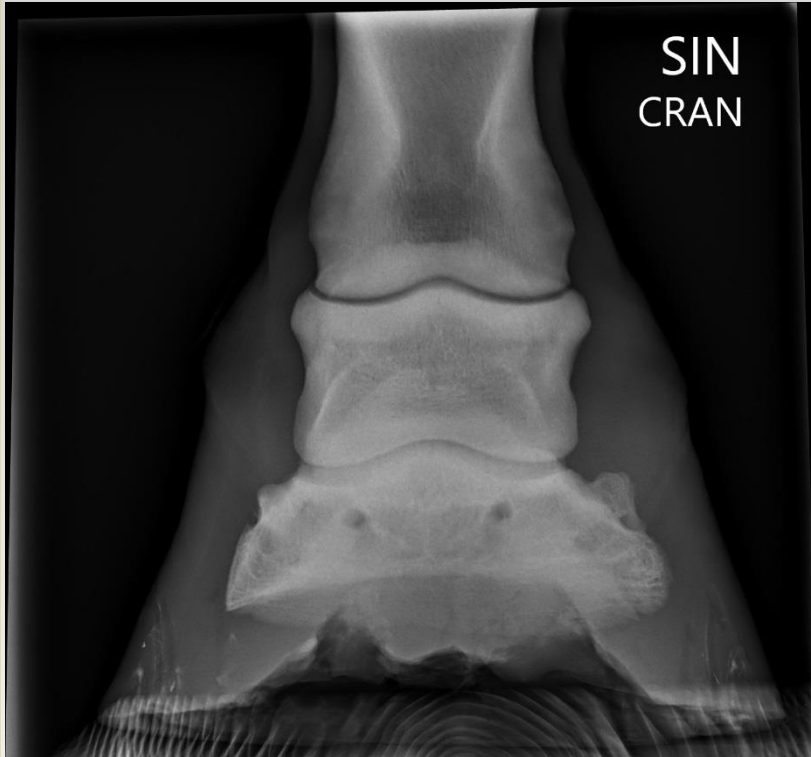
# Pukinasentoinen



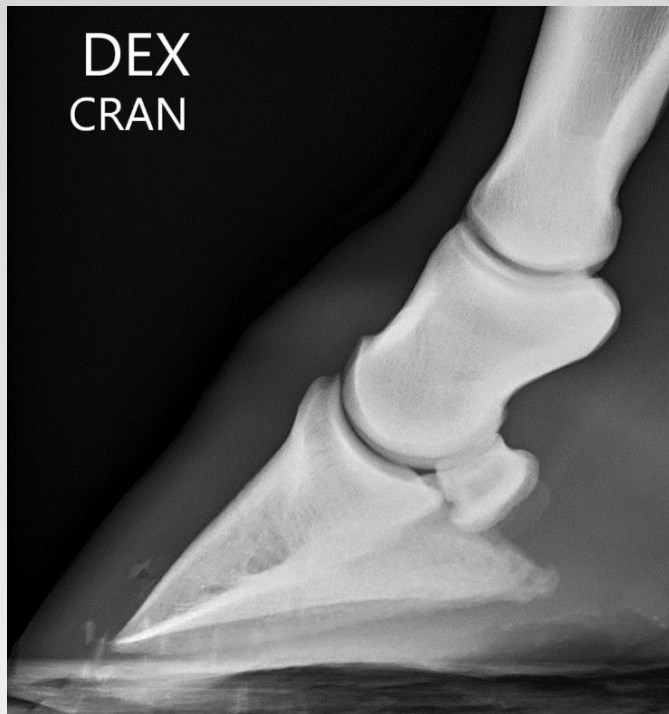
# Pukinkavio



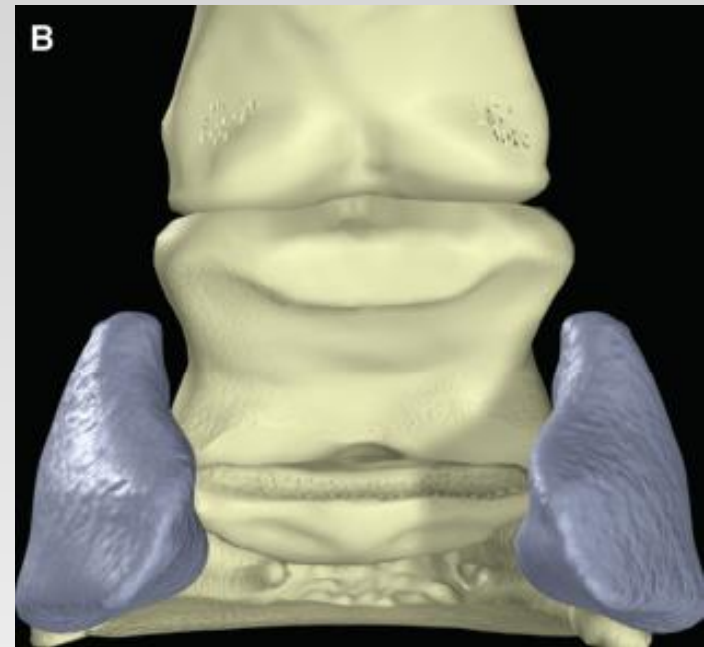
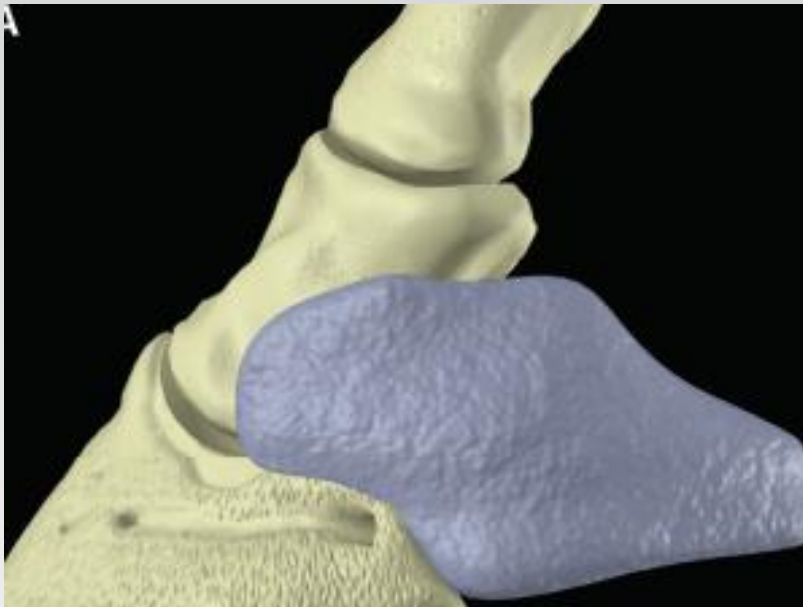
# Sivuttaistasapaino



# Ohut antura

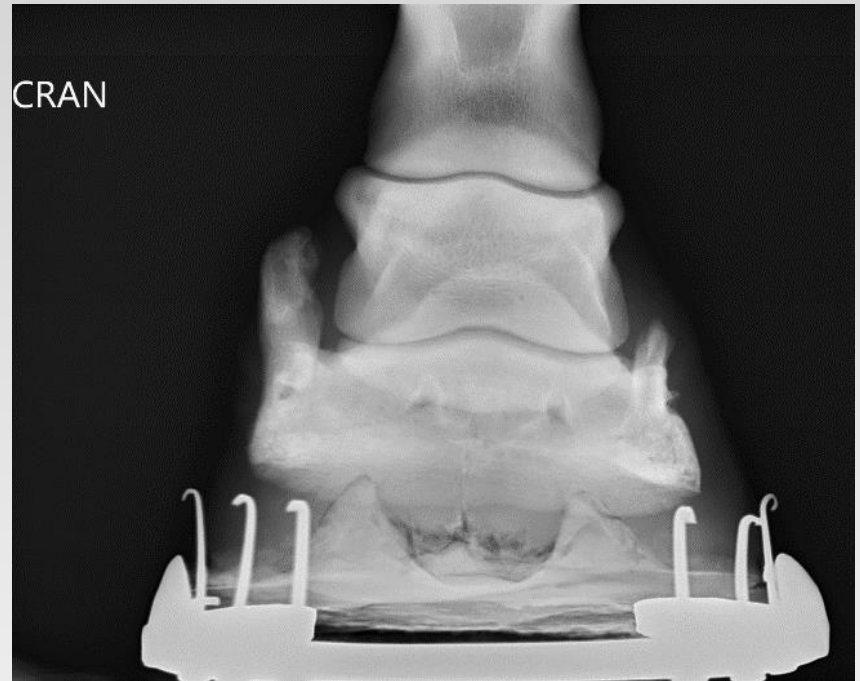
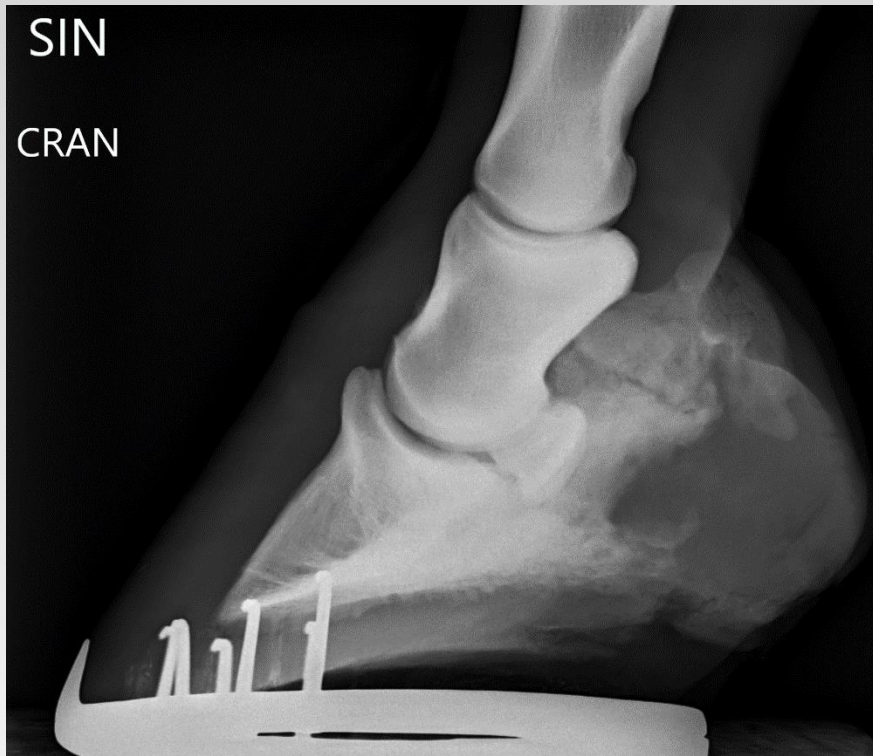


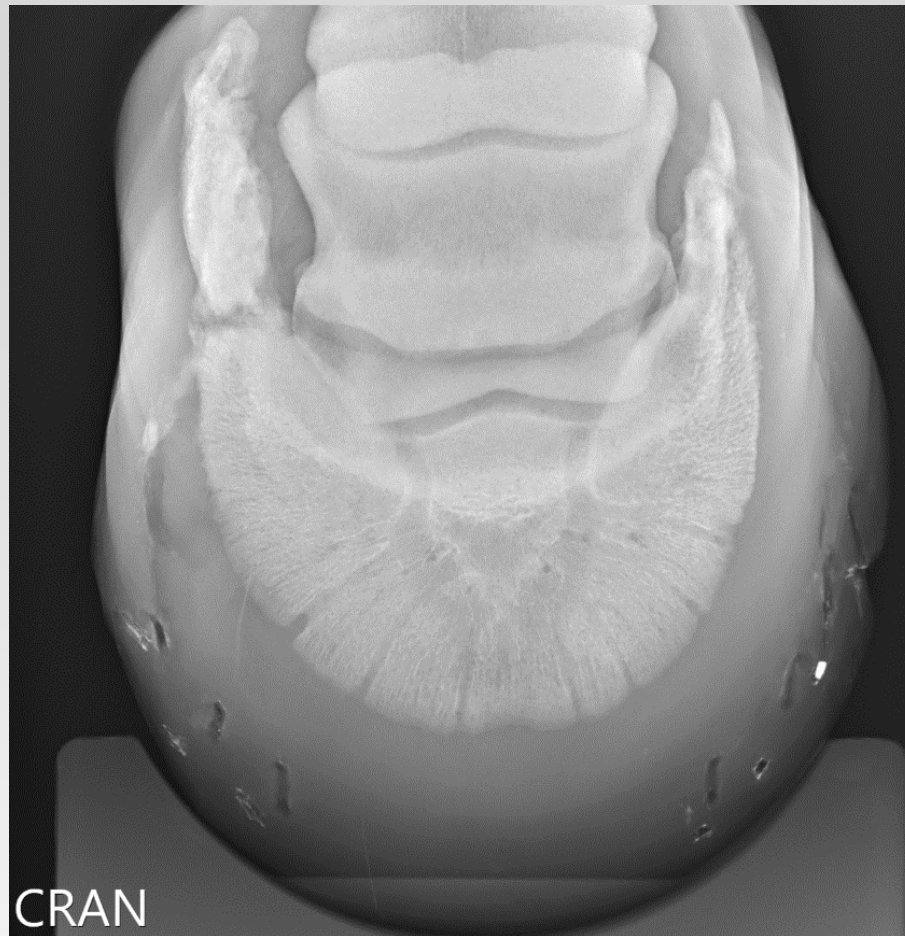
# Kaviorustot





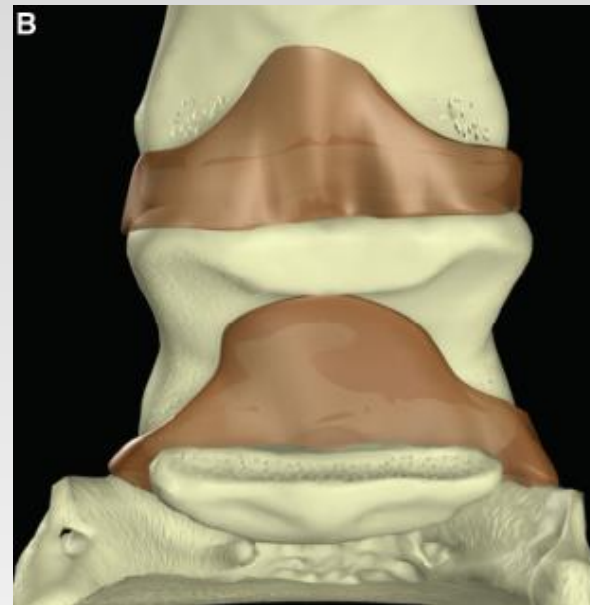
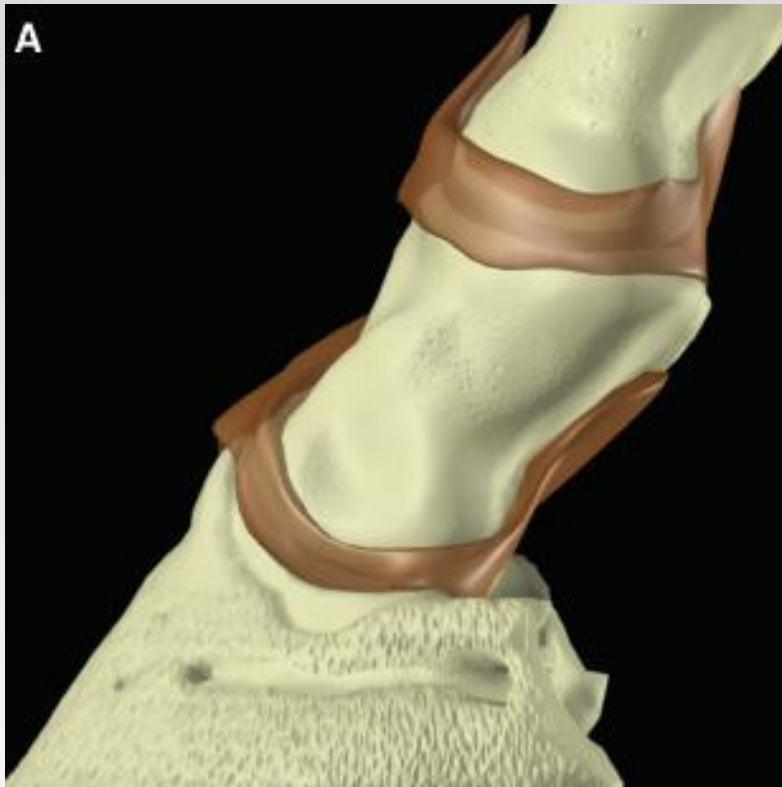
# Kaviorustoluutuma





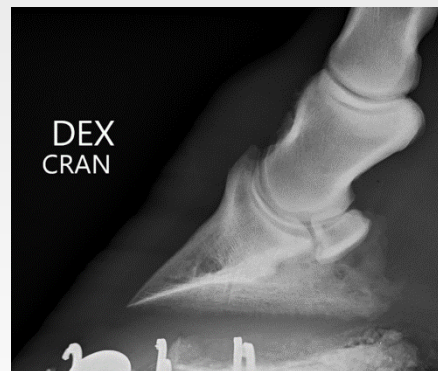
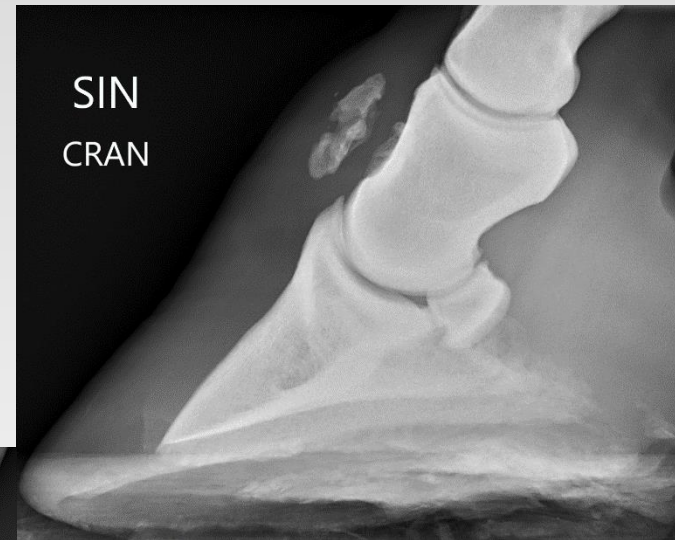
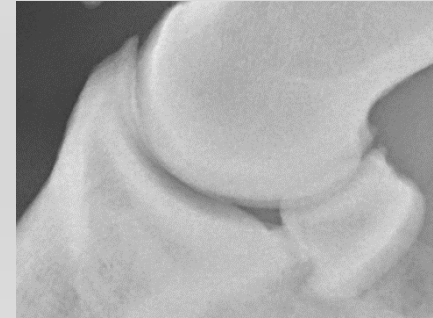
CRAN

# Nivelmuutokset



# Nivelrikko

- Tevävyys nivelten reunoilla
- Muutokset nivelkapelin kiinnityskohdissa
- Nivelvälin kaventumien
- Rustonalaisten luun muutokset



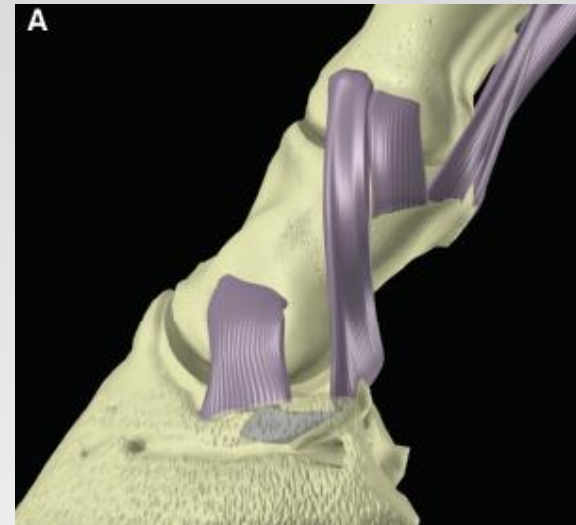
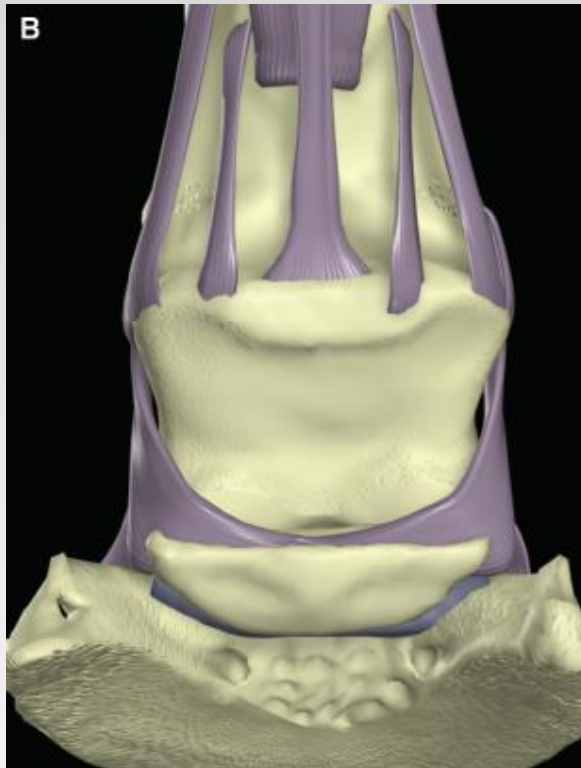


# Nivelrikkomuutokset

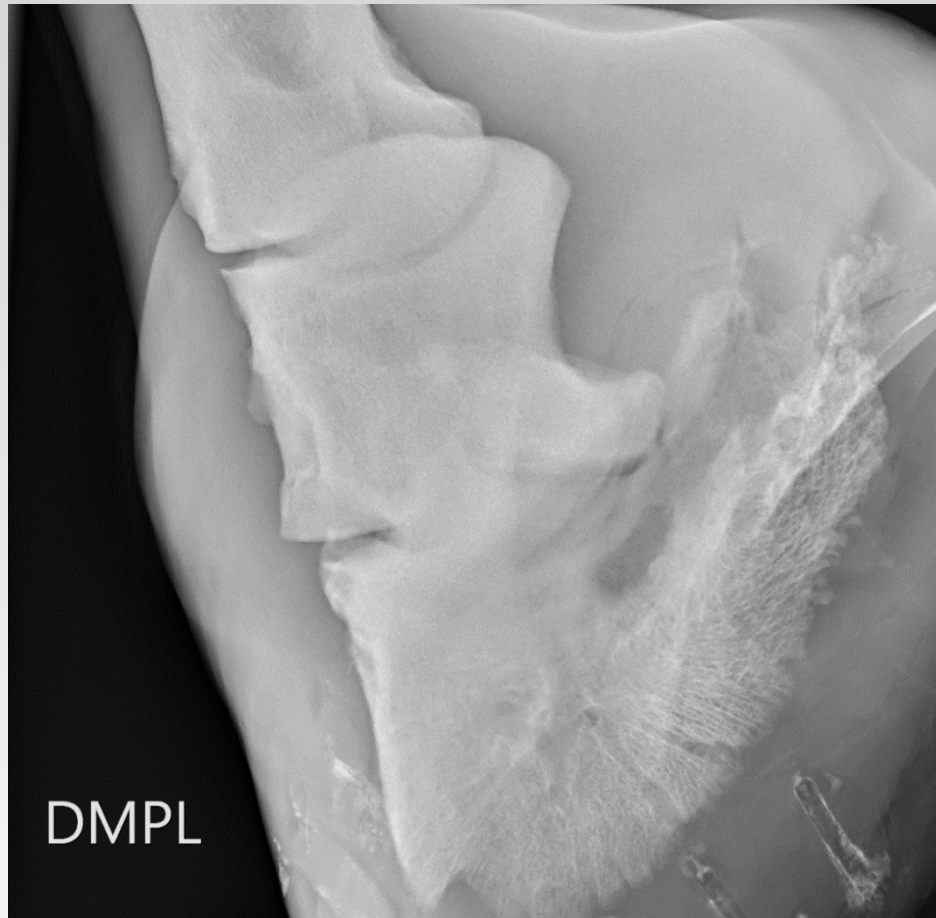




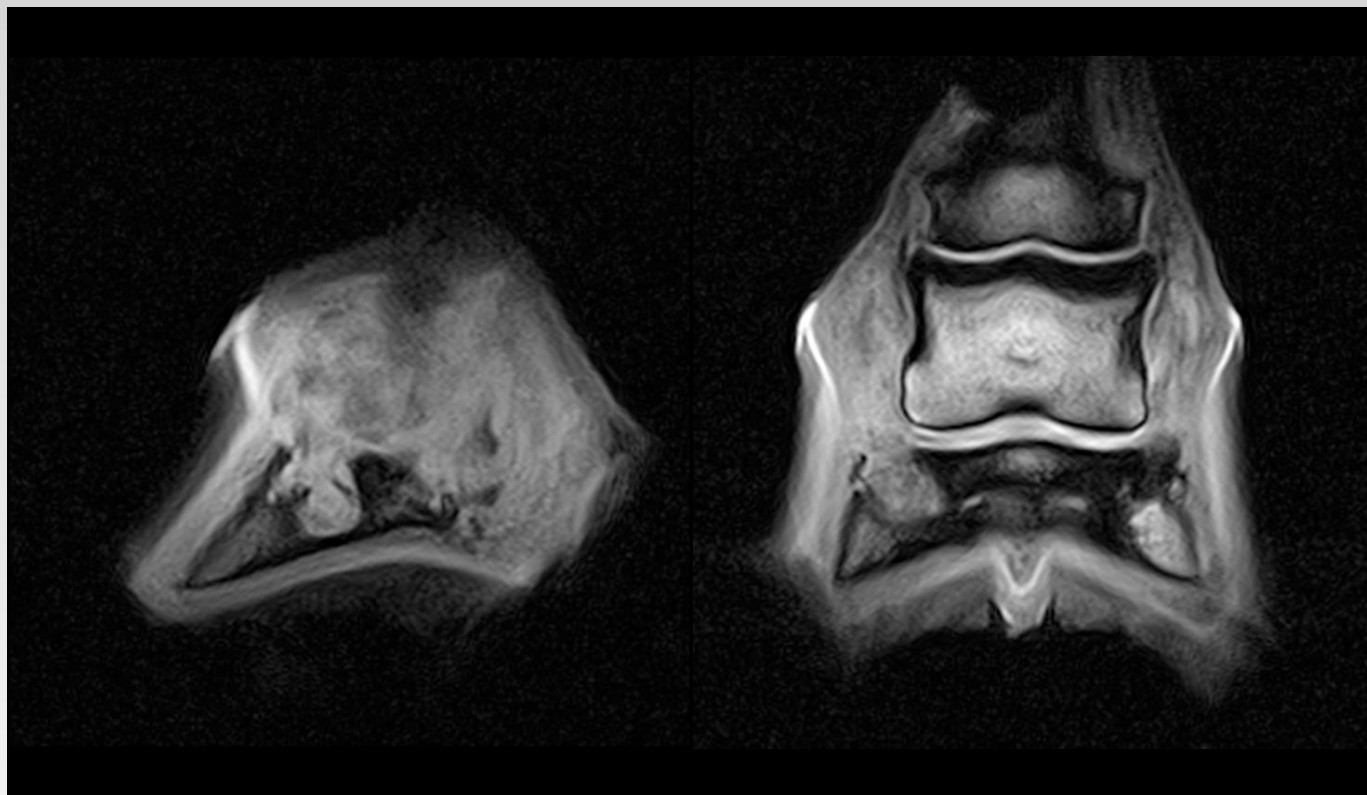
# Nivelsiteet



# Kavionivelen sivusidevamma



# Kavionivelen sivusidevamma



# Kavioluukysta

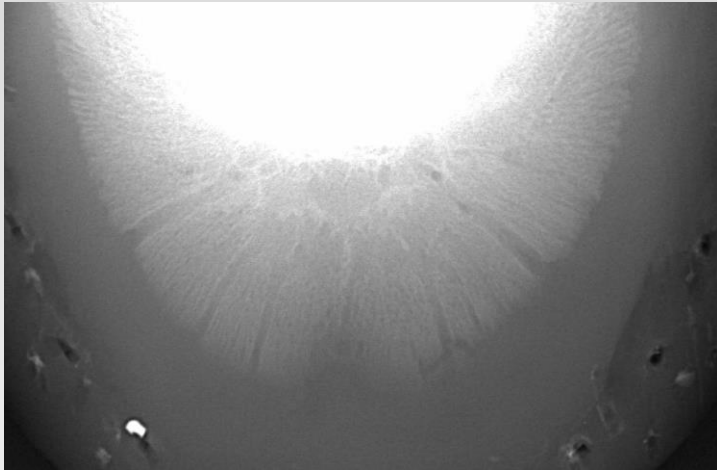


# Kavioluun murtumat





# Kavioluumurtumat



# Kavionivelen irtopalat / proc. ext. murtumat

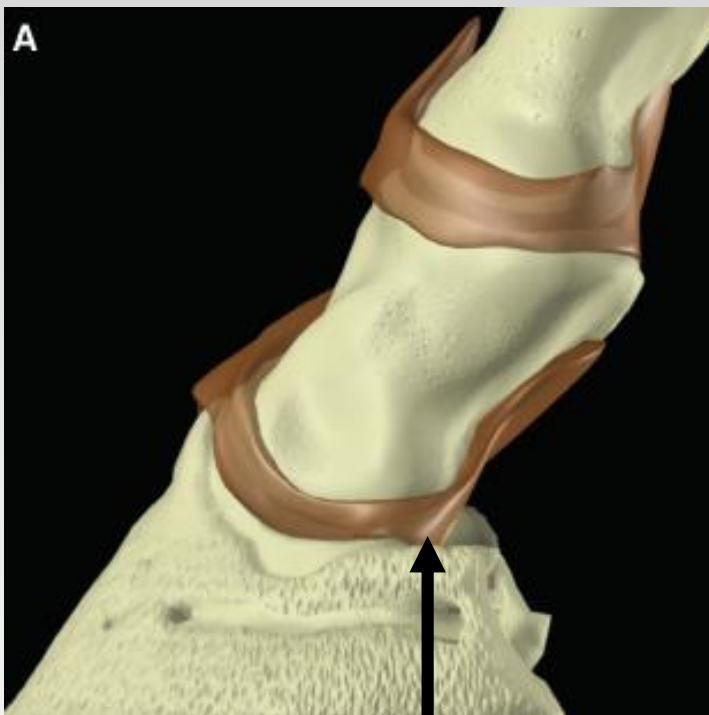


# Kavionivelen irtopala

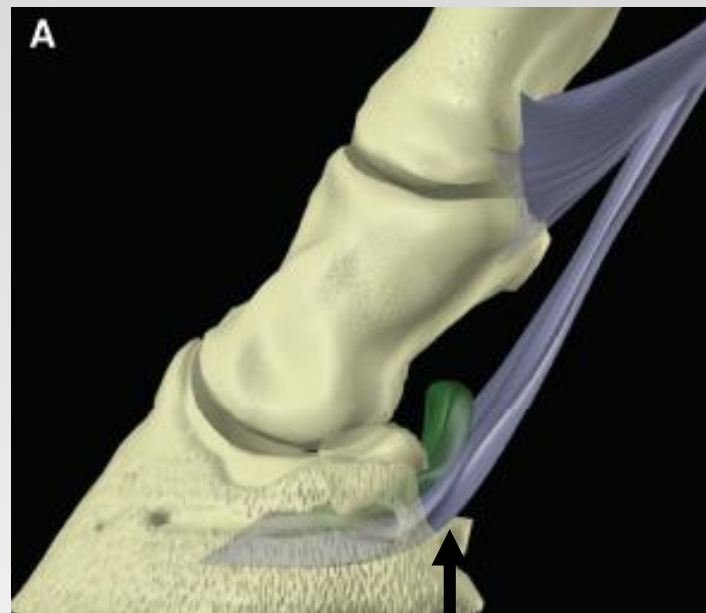


# Vierasesineet

Kavioniveleen/kavio-  
luuhun

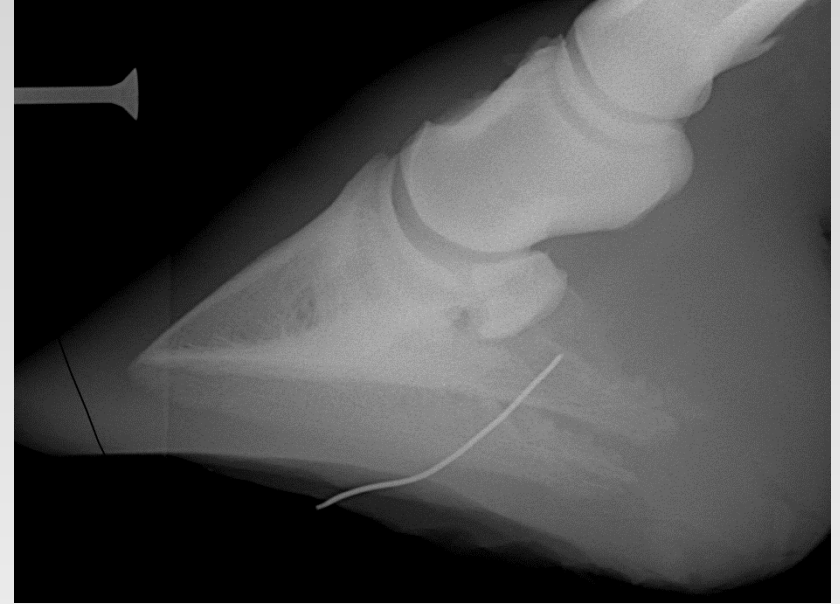
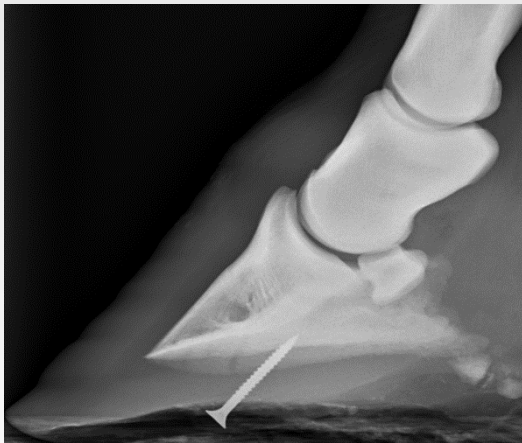


Sädeluuhun/sädeluun  
limapussiin/jännetuppeen



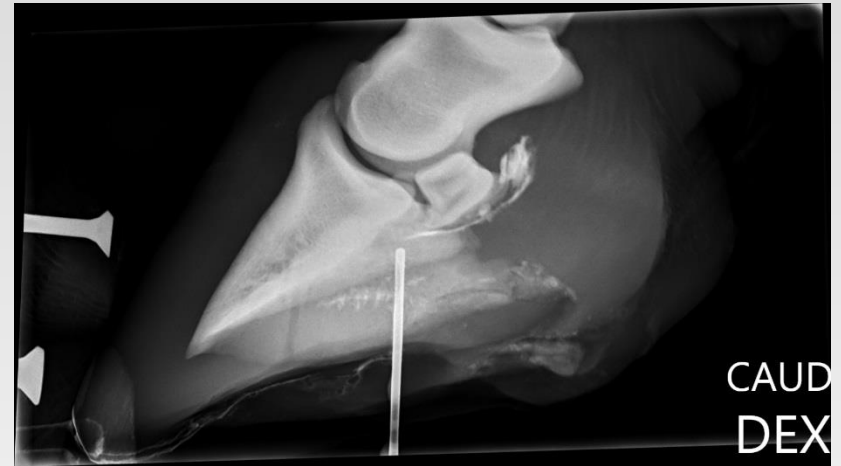
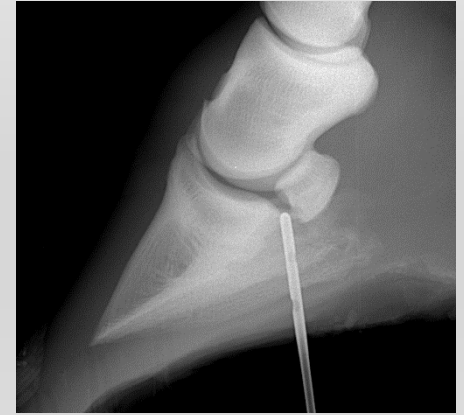
# Vierasesineet

- Puuta ei röntgenkuvissa voi erottaa
- Metalli näkyy hyvin





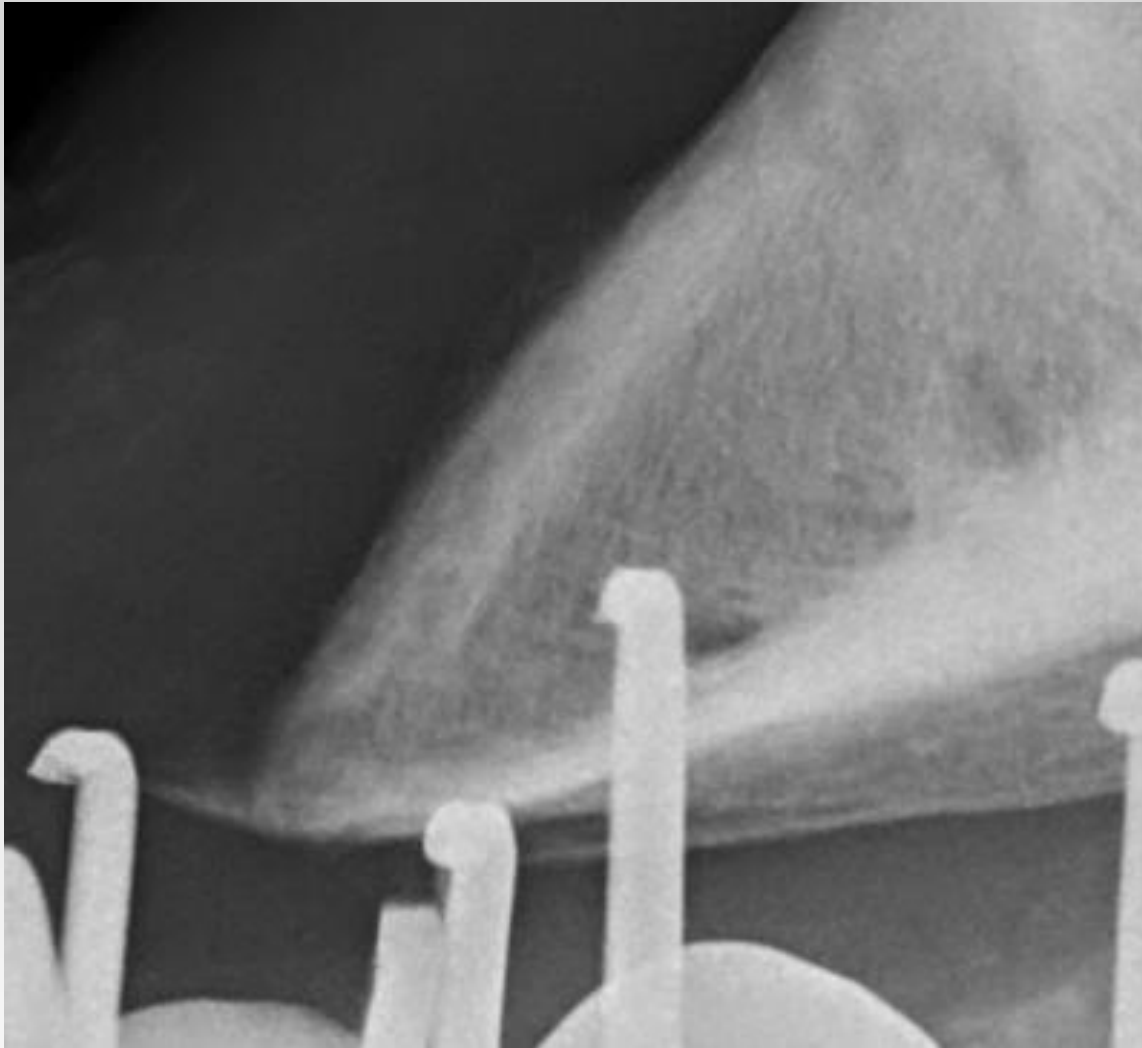
# Vierasesineet



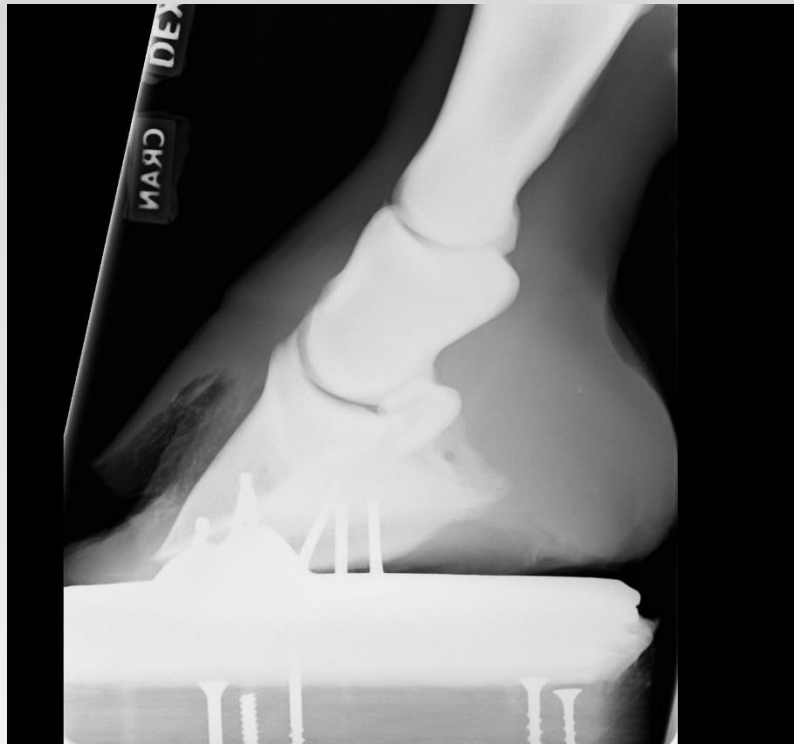
# Peri-/osteitiitti



# Peri-/osteiiitti



# Valkoviivatauti/irtoseinäisyys

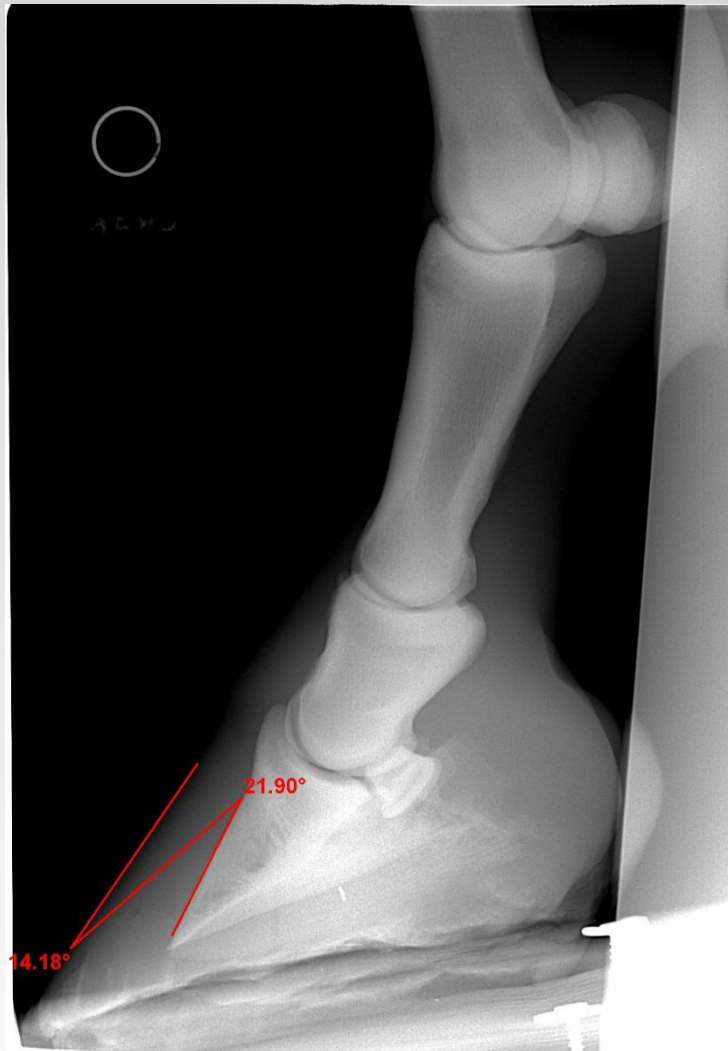


# Irtoseinäsyys

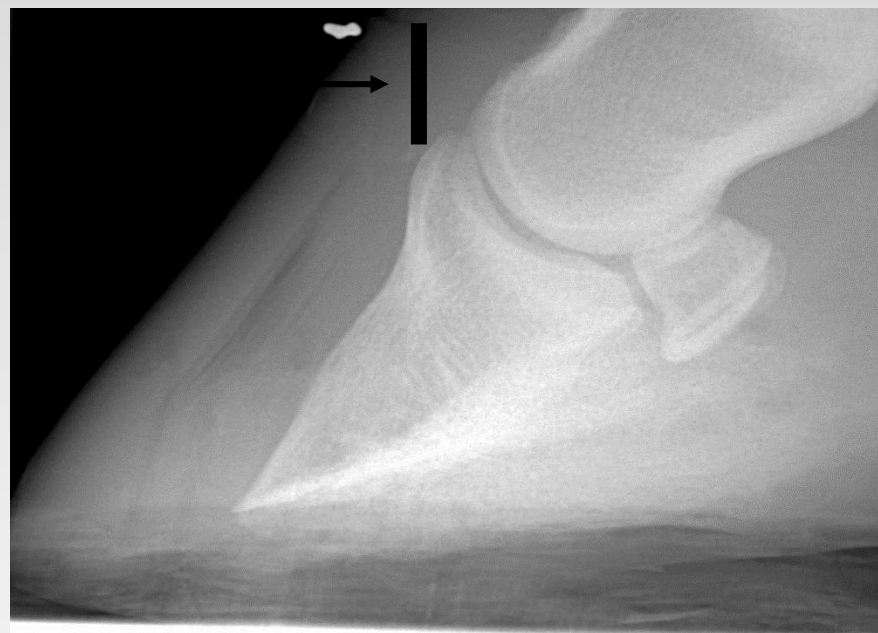
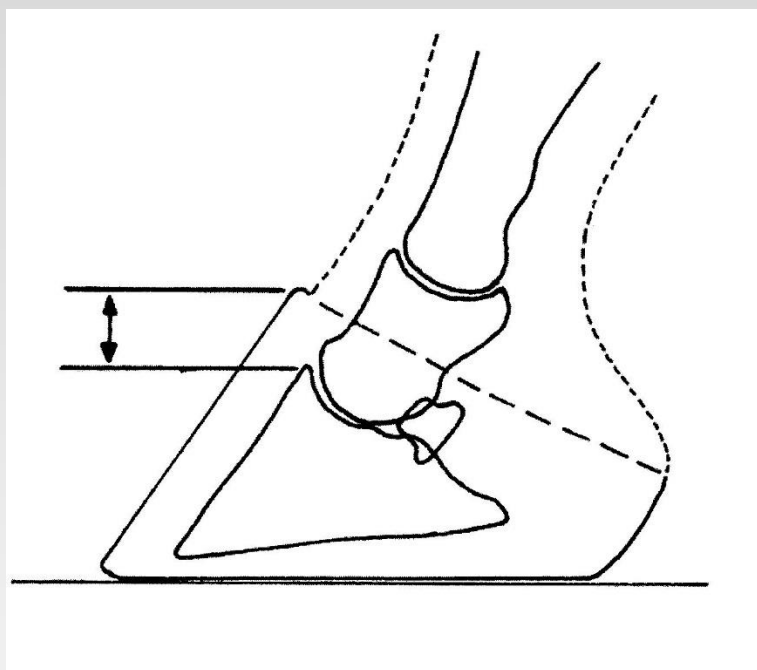


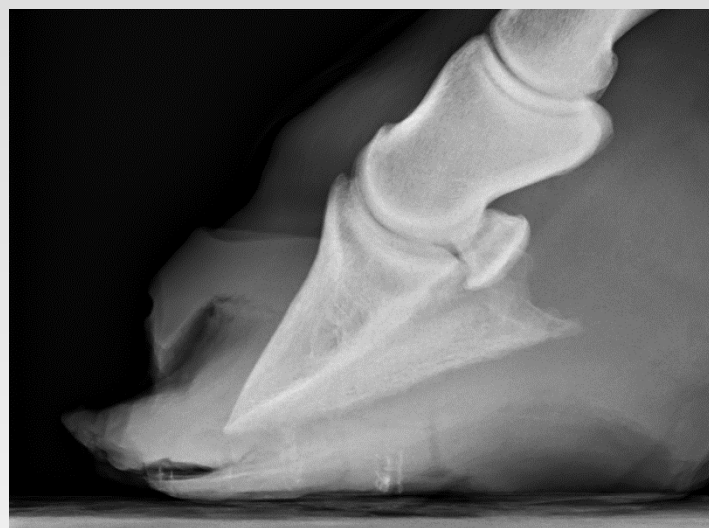
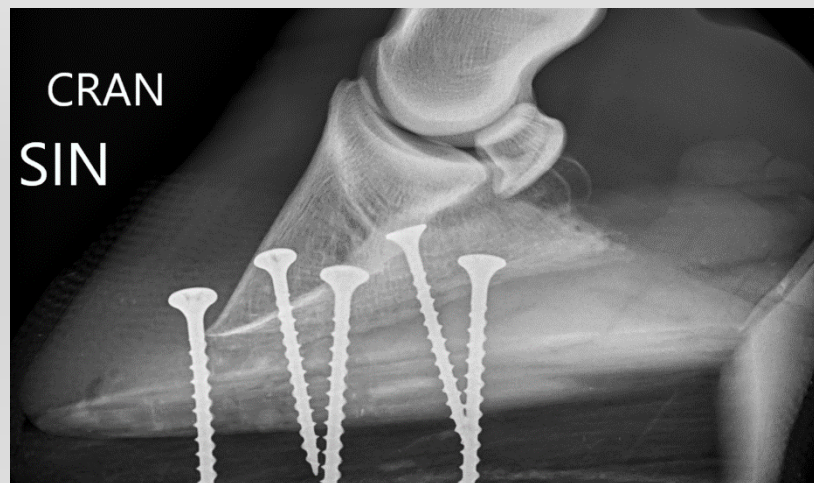
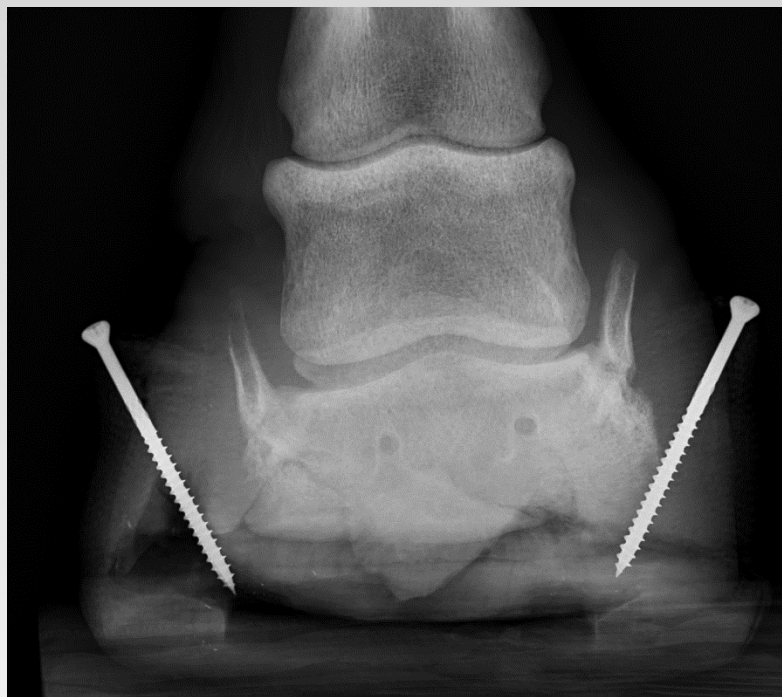


# Kaviokuume - rotaation arviointi

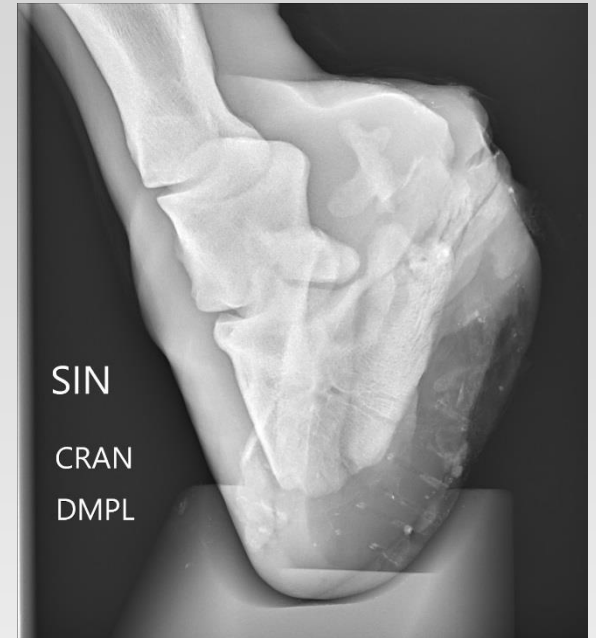


# Kaviokuume - sinkkeri





# Naulanpainama/kavioruhje



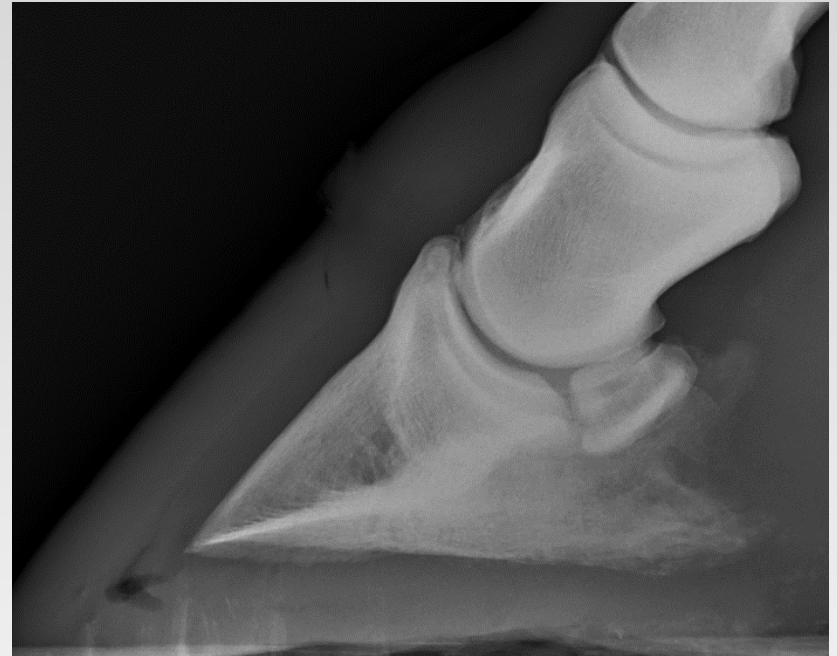
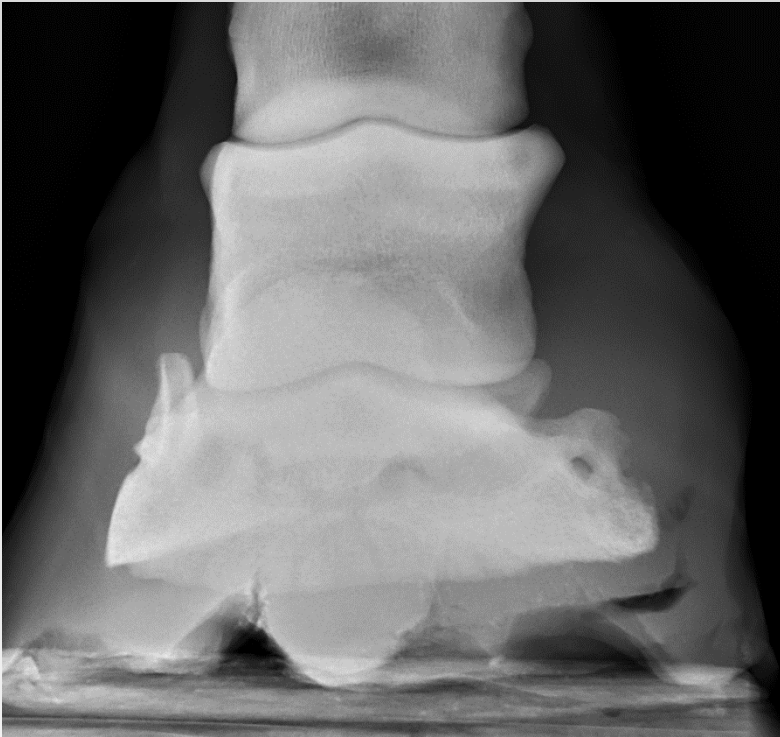


# Kaviopaise



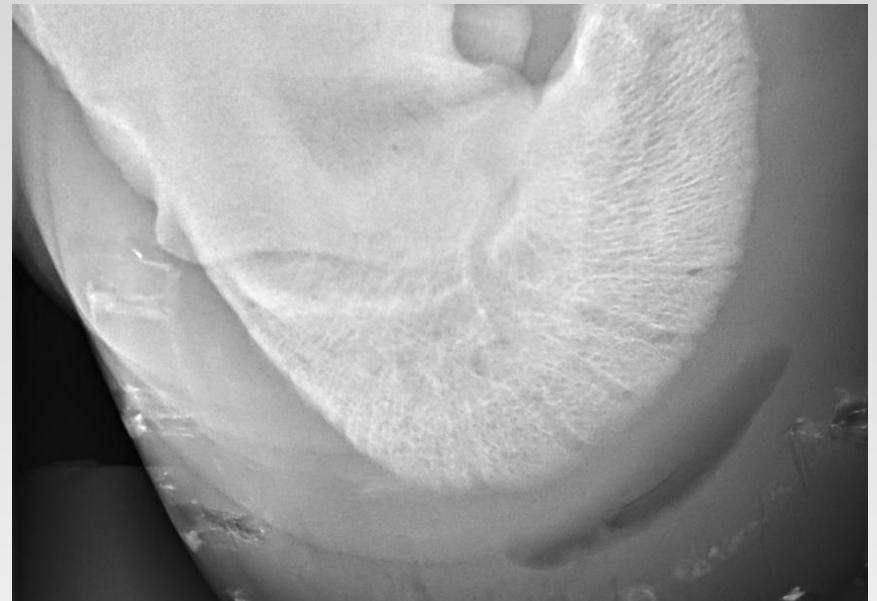


# Kaviopaise





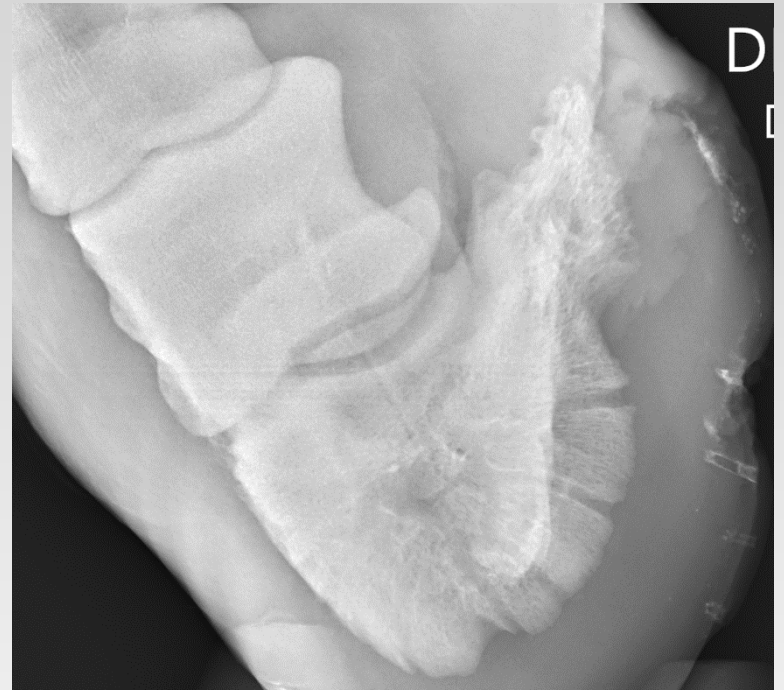
CAL



# Kaviopaise



# Keratooma



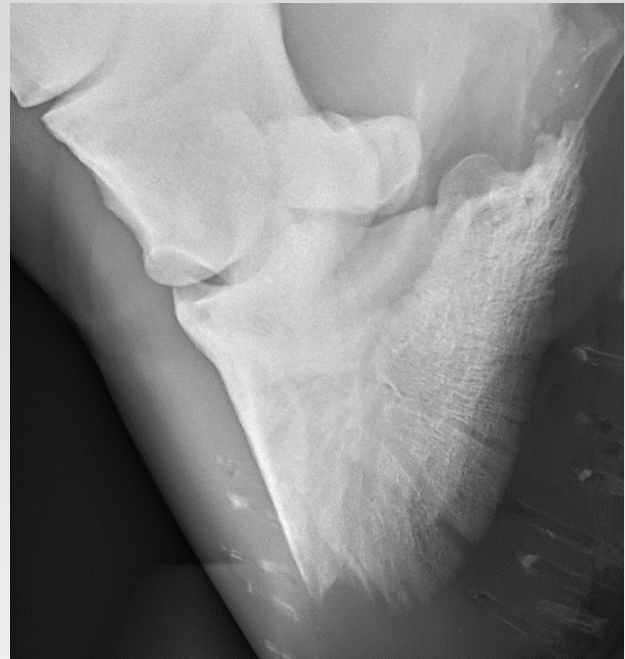
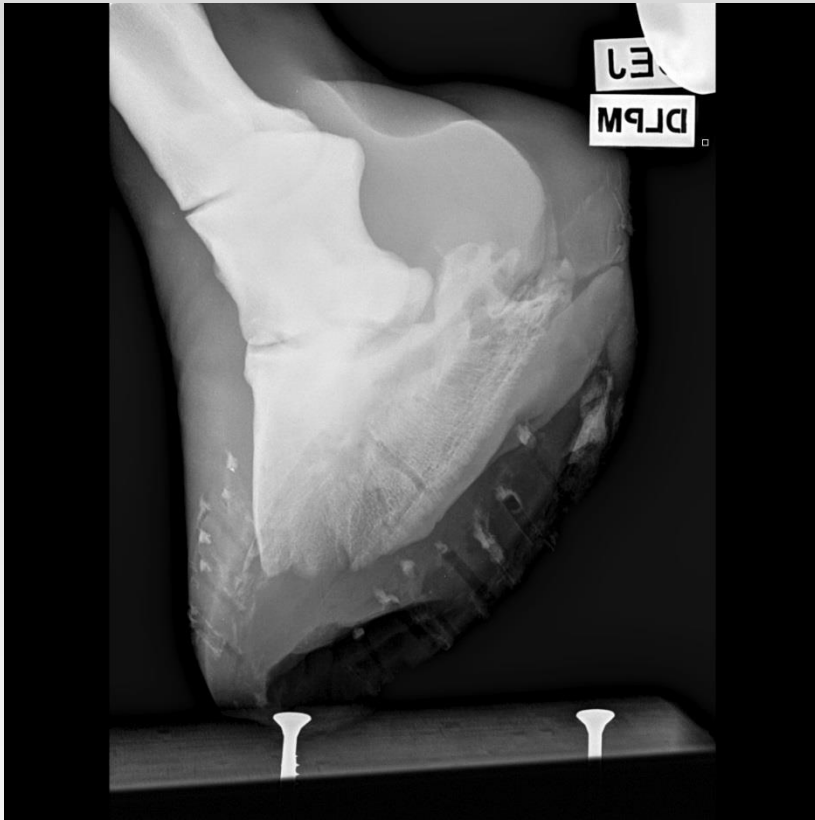


# Keratooma



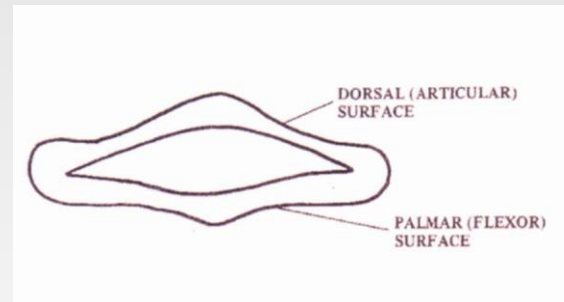
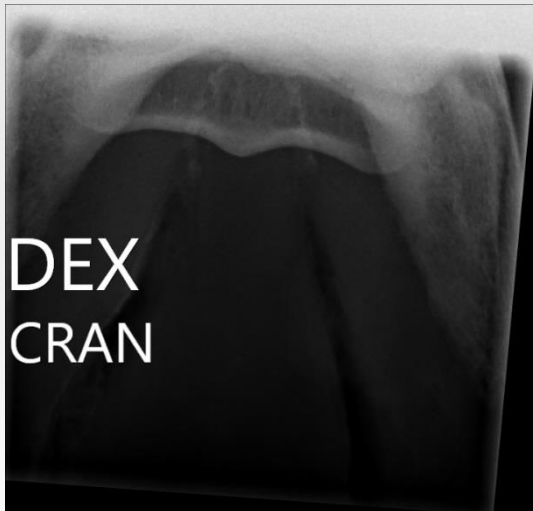
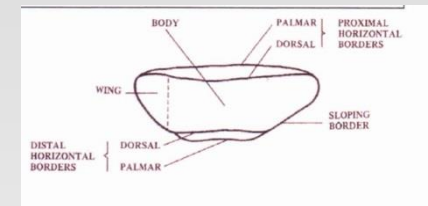
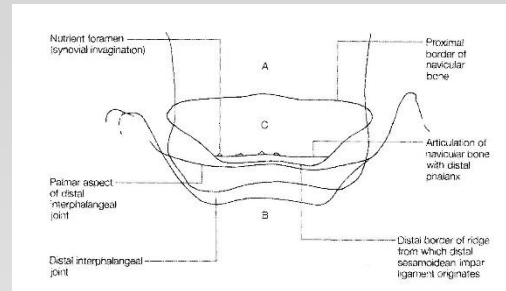


# Keratooma



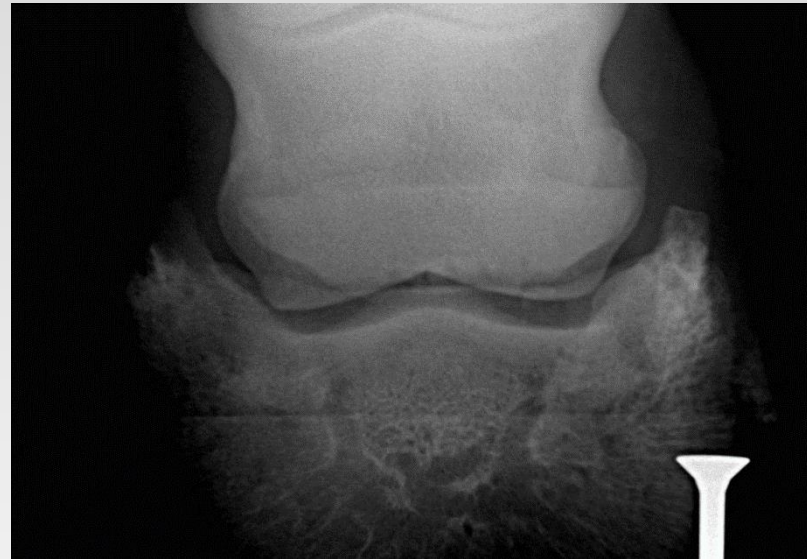
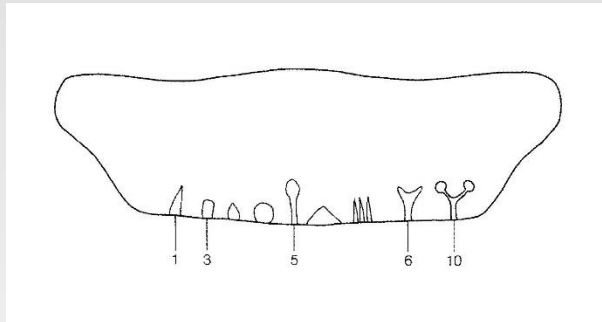


# Sädeluun arviointi

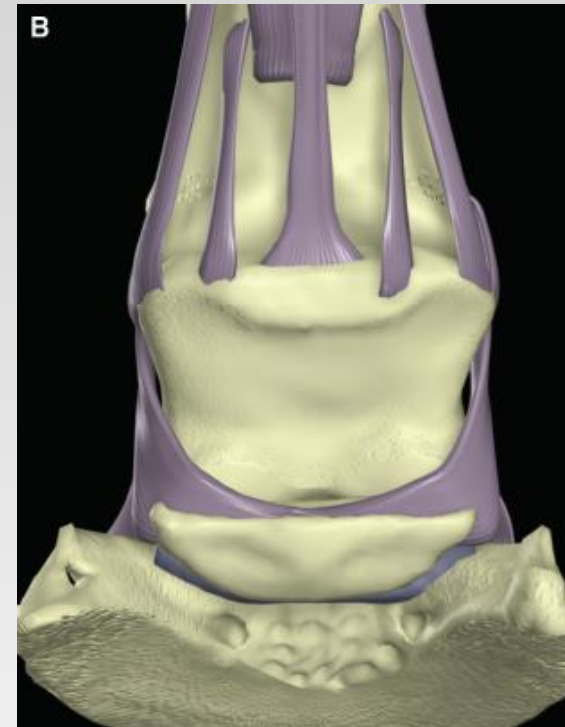
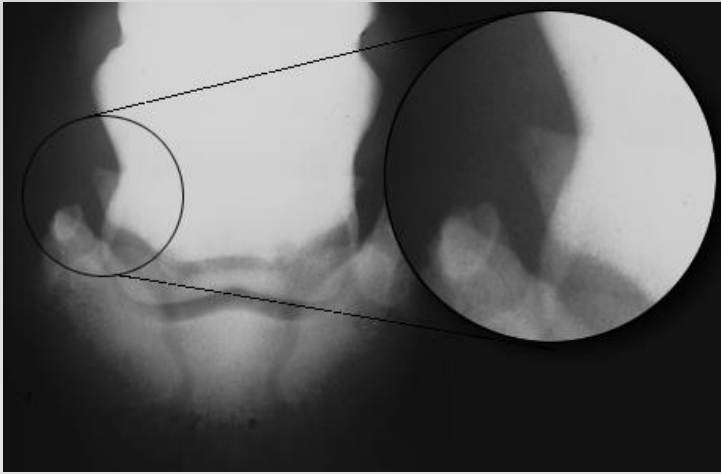


# Sädeluun alaosan harventumamuutokset

- Nutritiokanavat sädeluun alareunassa (synovia fossat) – useimmiten harmiton sivulöydös

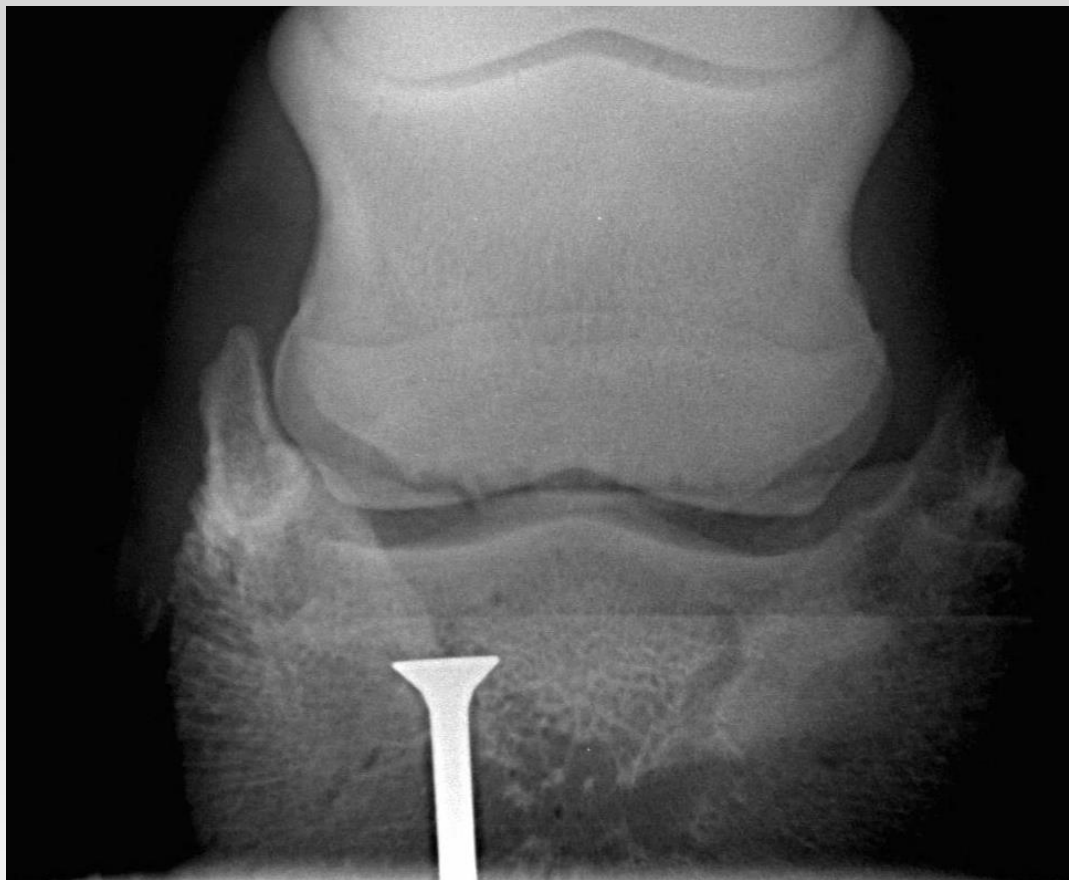


# Sädeluun sivusiteiden rasitusperäiset luumuutokset





# (Impar)ligamentin avulsiomurtumat



# Sädeluun kysta

Synovia fossat

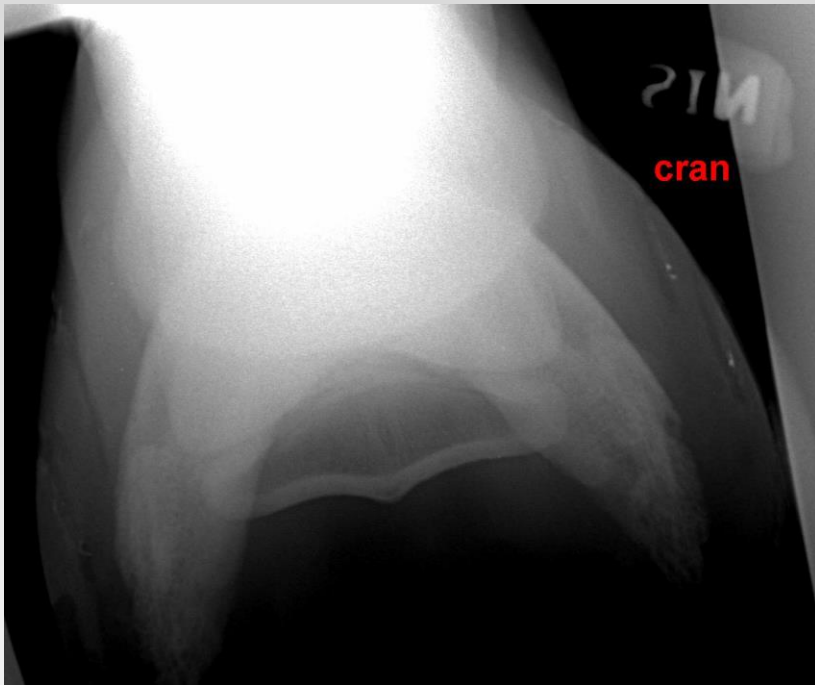


Sädeluun kysta

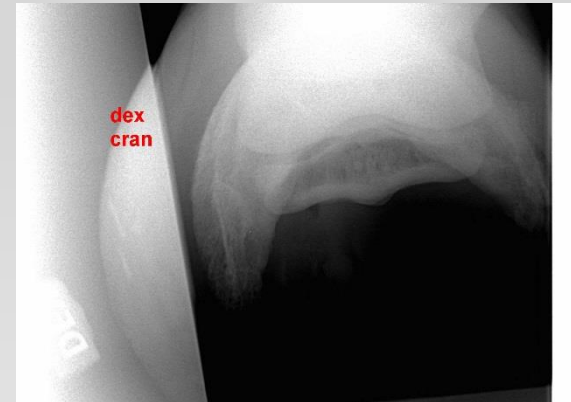


# Sädeluun skyline

Normaali



Epänormaali



# Kaksiosainen sädeluu



# Sädeluun murtuma

