

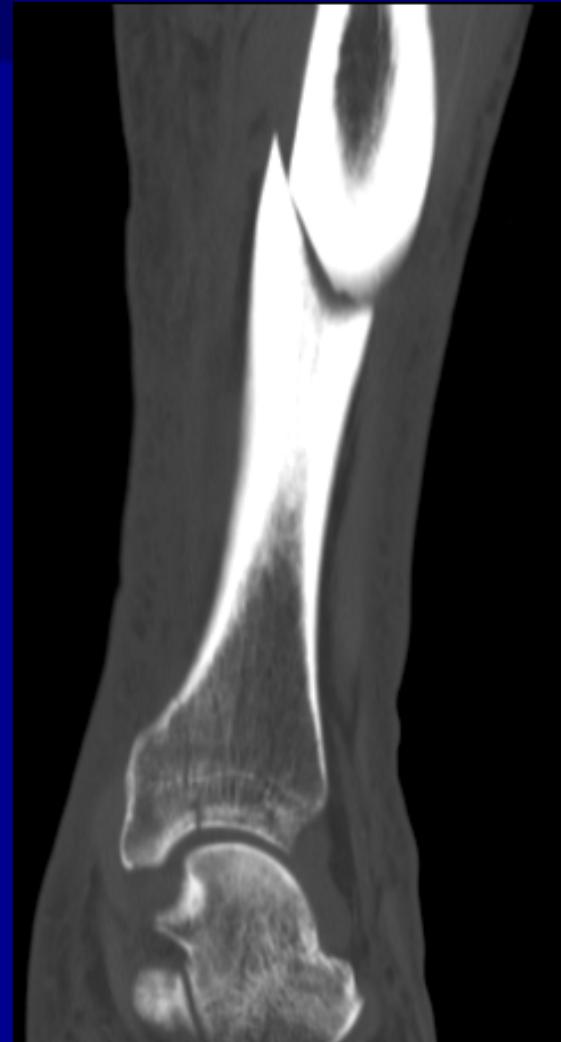
# Introduktion til absolut og relativ stabilitet

YODA, 2012

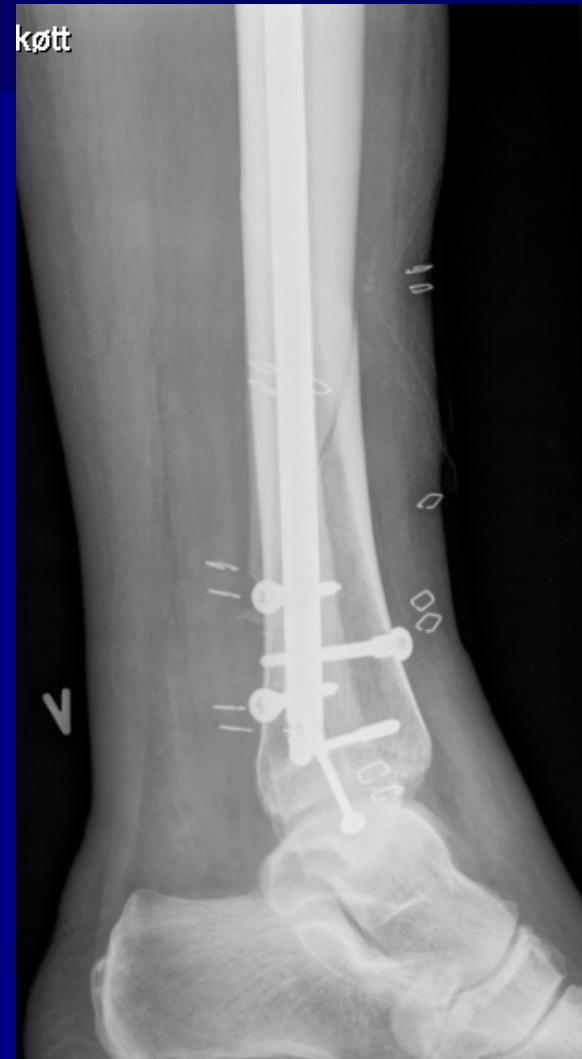
Lonnie Froberg, Afd.læge, Ph.D  
Traumesektoren, Rigshospitalet

- Case
- Frakturheling
- Hvornår skal man anvende absolut og relativ stabilitet?
- Absolut stabilitet
- Relativ stabilitet
- Resumé

# Behandling?



# Er frakturene helet?



# Er frakturene helet?



# Frakturheling

- Heling er en biologisk proces
  - Primær heling
  - Sekundær heling

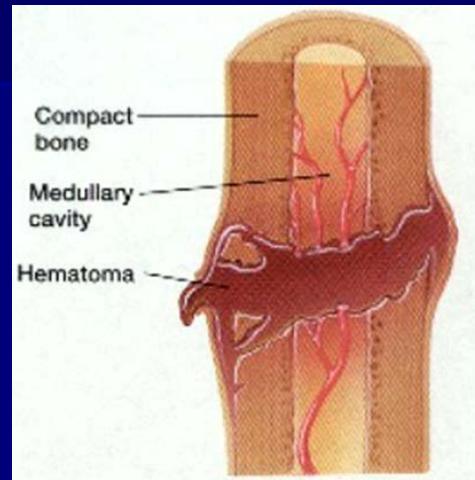
# Primær heling – absolut stabilitet

- Kompression over frakturlinien
- Heling uden callus



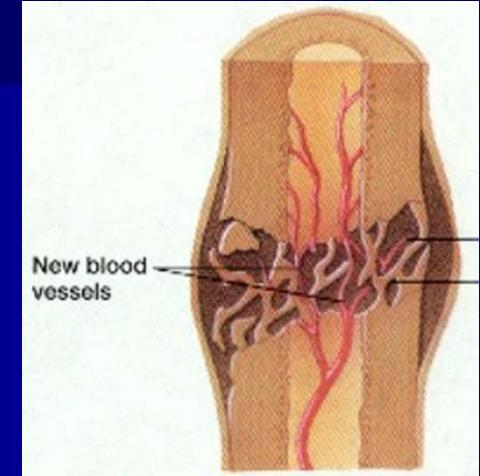
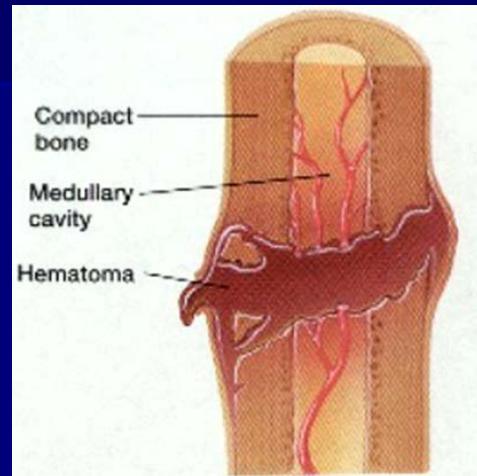
# Sekundær heling – relativ stabilitet

- Hæmatom
  - 1-2 uger



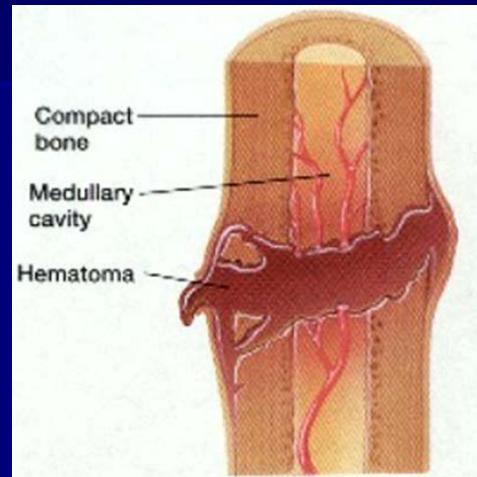
# Sekundær heling – relativ stabilitet

- Hæmatom
  - 1-2 uger
- Proliferation
  - 3-12 uger

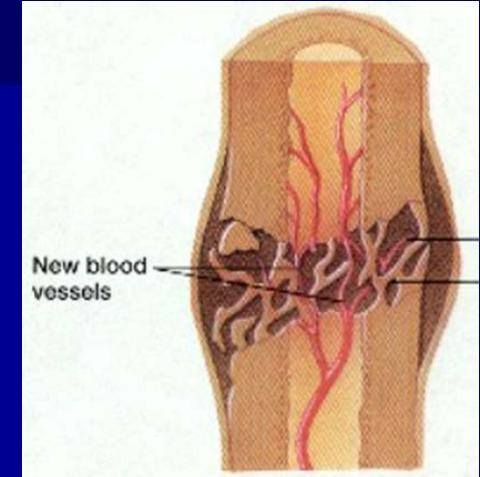


# Sekundær heling – relativ stabilitet

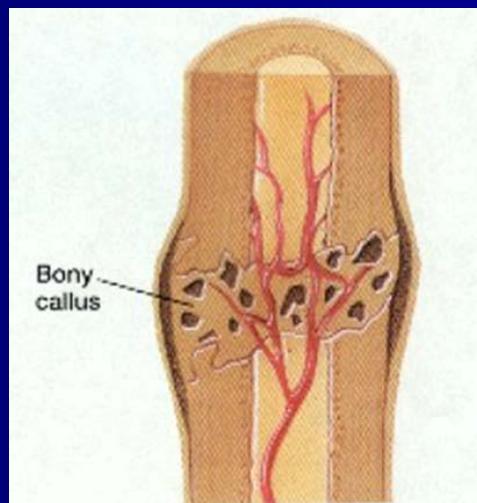
- Hæmatom
  - 1-2 uger



- Proliferation
  - 3-12 uger

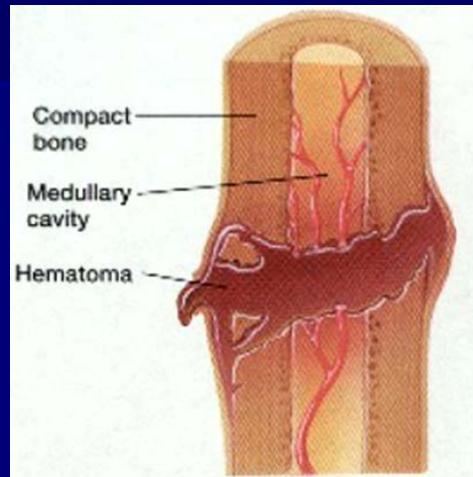


- Callus dannelse
  - 3-4 mdr.

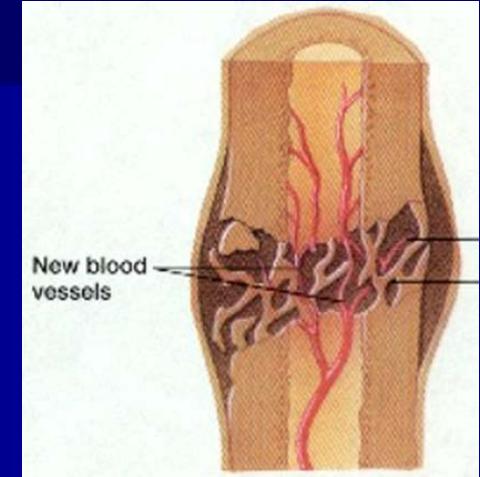


# Sekundær heling – relativ stabilitet

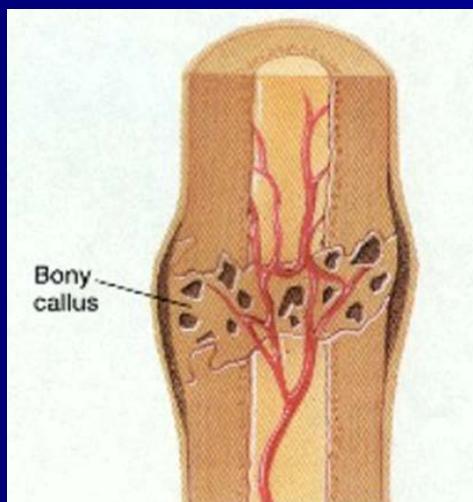
- Hæmatom
  - 1-2 uger



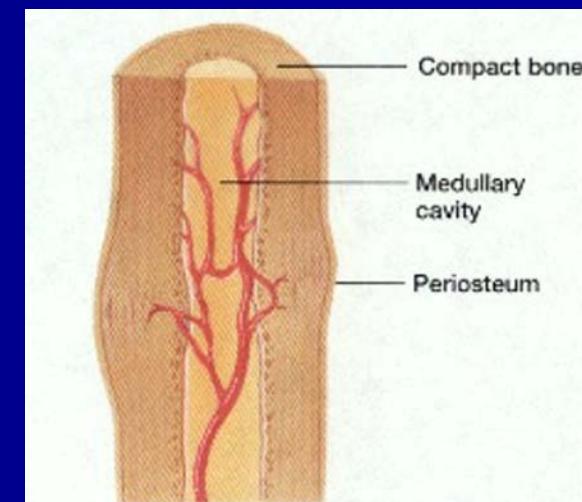
- Proliferation
  - 3-12 uger

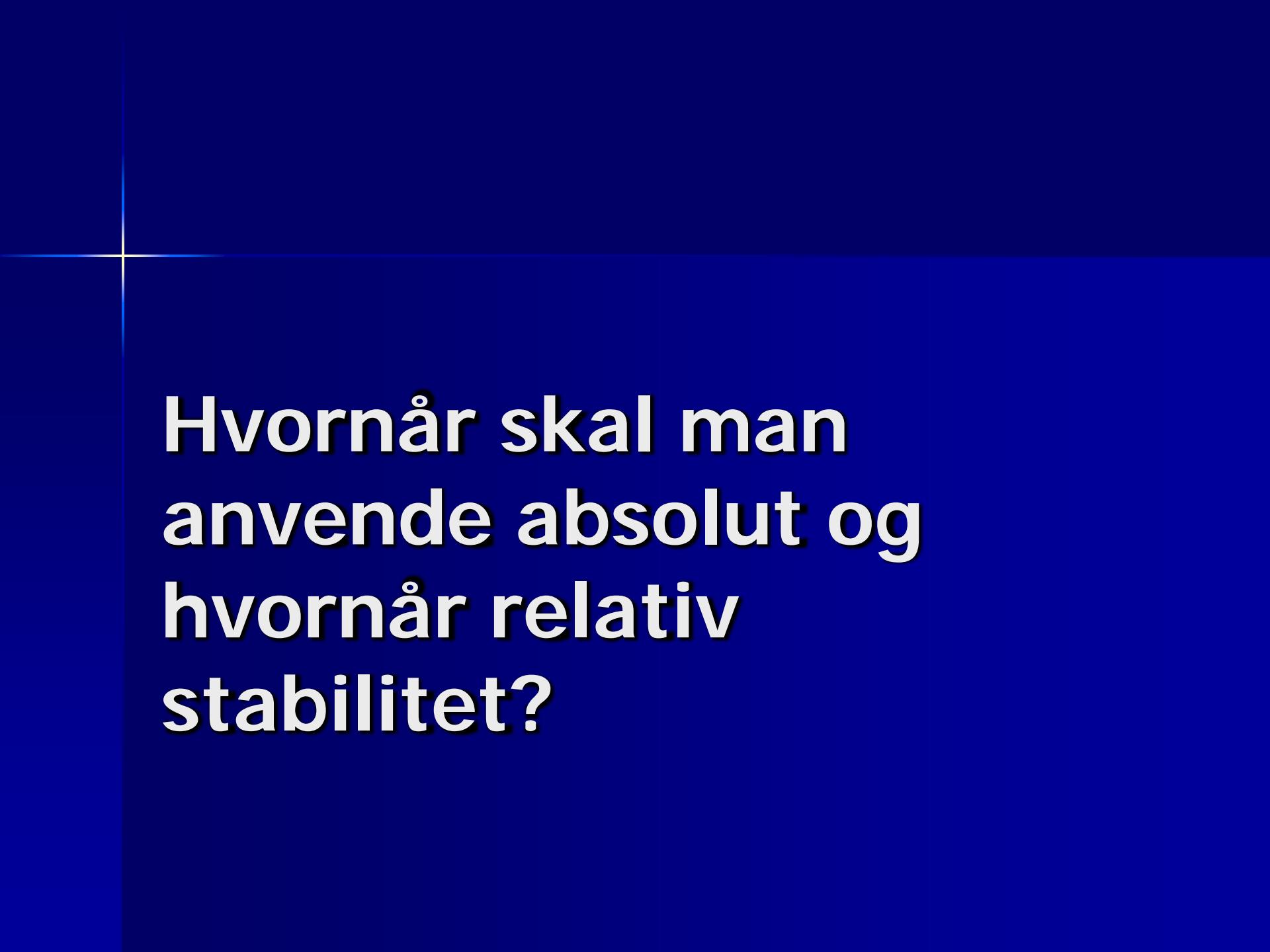


- Callus dannelsse
  - 3-4 mdr.



- Konsolidering
  - år





**Hvornår skal man  
anvende absolut og  
hvornår relativ  
stabilitet?**

# Tommelfingerregel

- Intraartikulære  
frakturer
  - Absolut stabilitet



# Tommelfingerregel

- Ekstraartikulære frakturer
  - Relativ stabilitet
  - Obs. længde, akse, rotation



# Absolut stabilitet

Intraartikulære fraktur

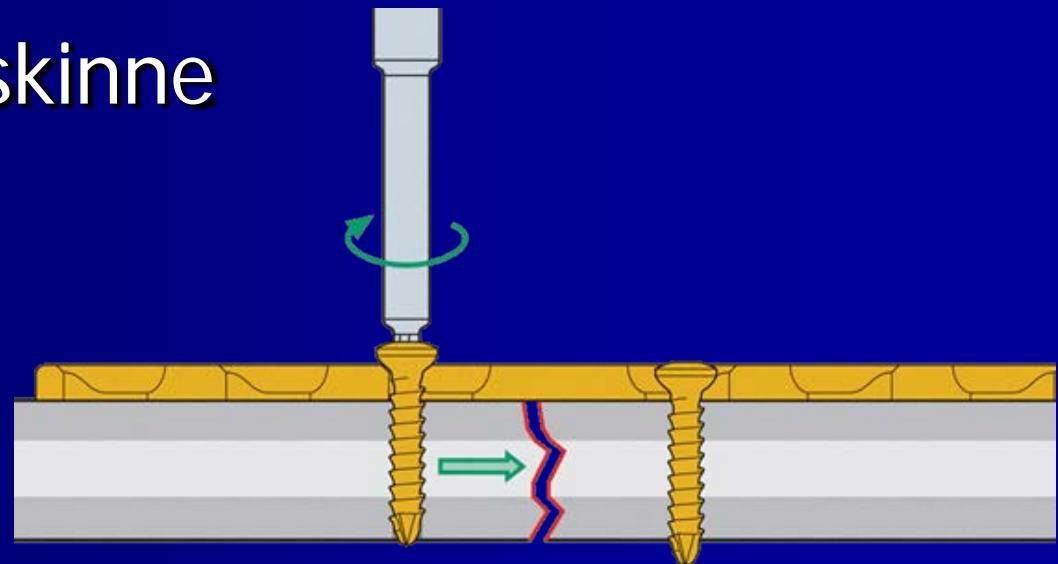
Fiksation med kompression  
over frakturen

Heler uden callus dannelse



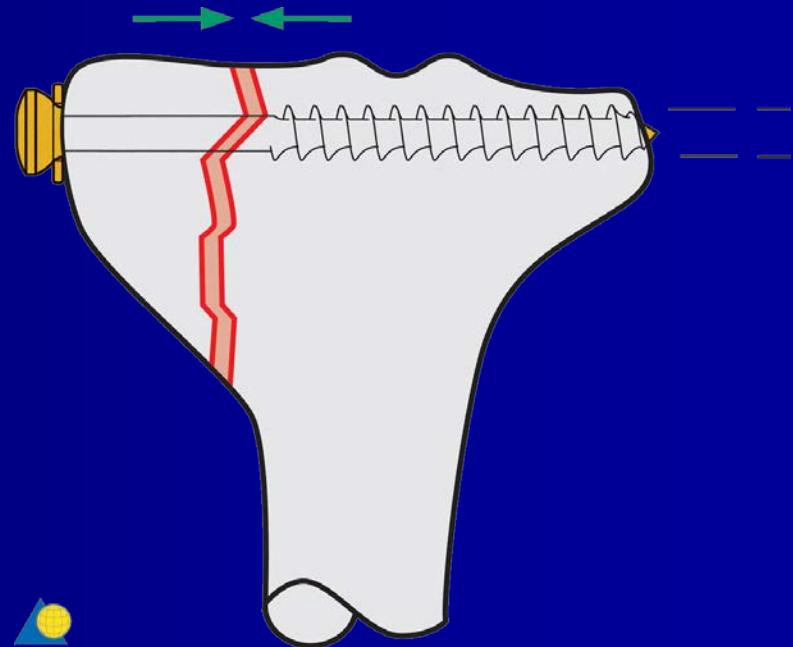
# Hvordan opnås absolut stabilitet?

## ■ Kompressionsskinne



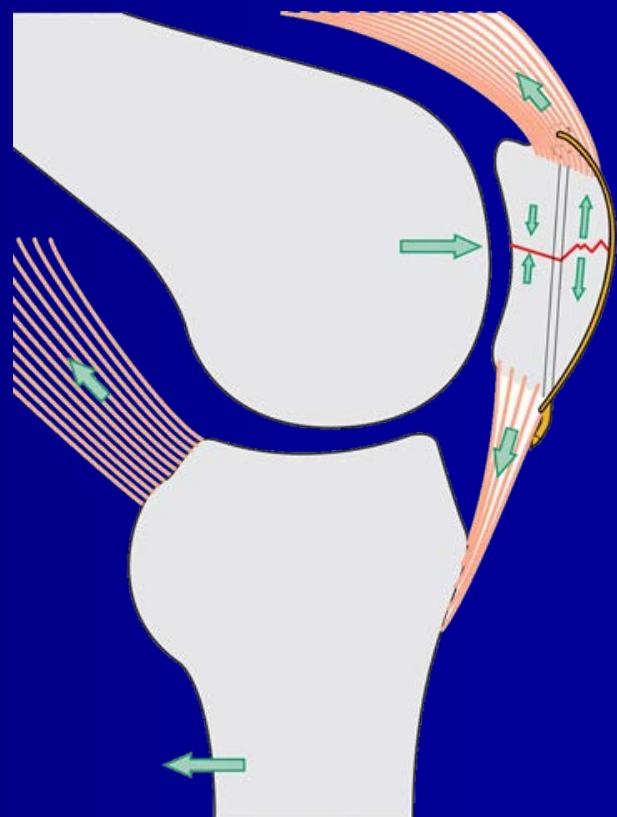
# Hvordan opnås absolut stabilitet?

- Lag-skruer



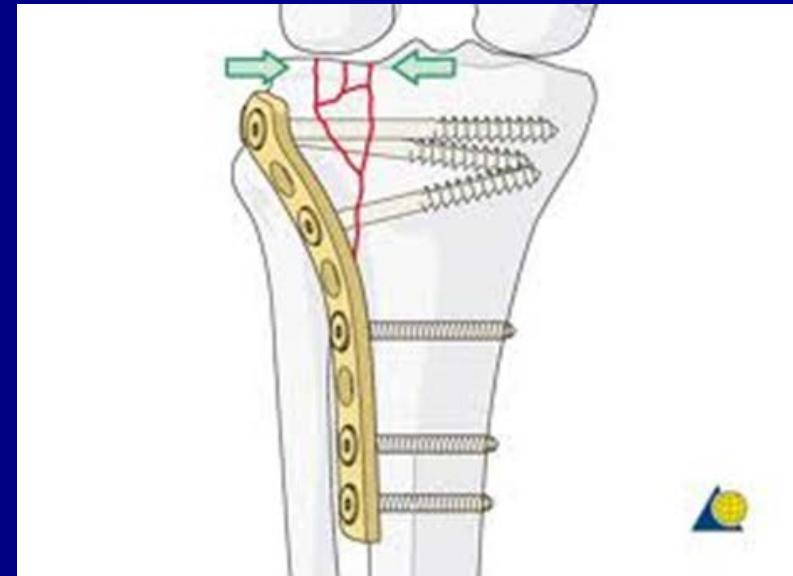
# Hvordan opnås absolut stabilitet?

- Tension band



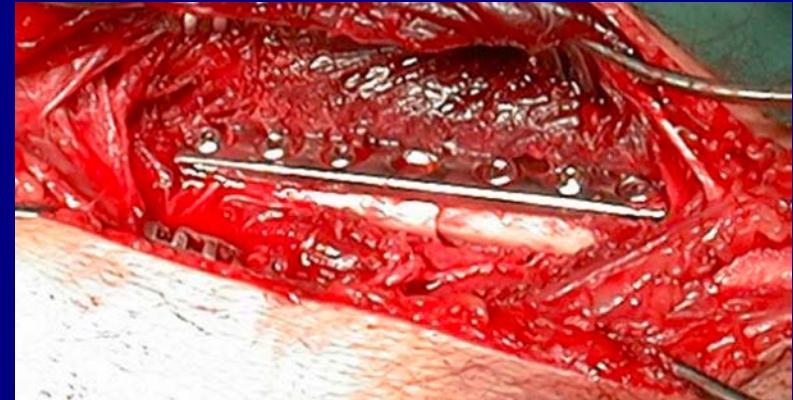
# Hvordan opnås absolut stabilitet?

- Buttress plate



# Hvordan reponeres frakturen ved absolut stabilitet?

- Åben reponering



# Absolut stabilitet

## ■ Fordele

- Eksakt reposition
- Stabil fiksation

## ■ Ulemper

- Stor frilægning på selve bruddet forringer blodforsyning
- Fjernelse af fraktur hæmatom, fjerner biokemiske faktorer
- Komprimerende metalskinner forringer blodforsyning



# Relativ stabilitet

Ekstraartikulære fraktur

Fiksation som tillader små  
bevægelser over frakturen

Heler med callusdannelse



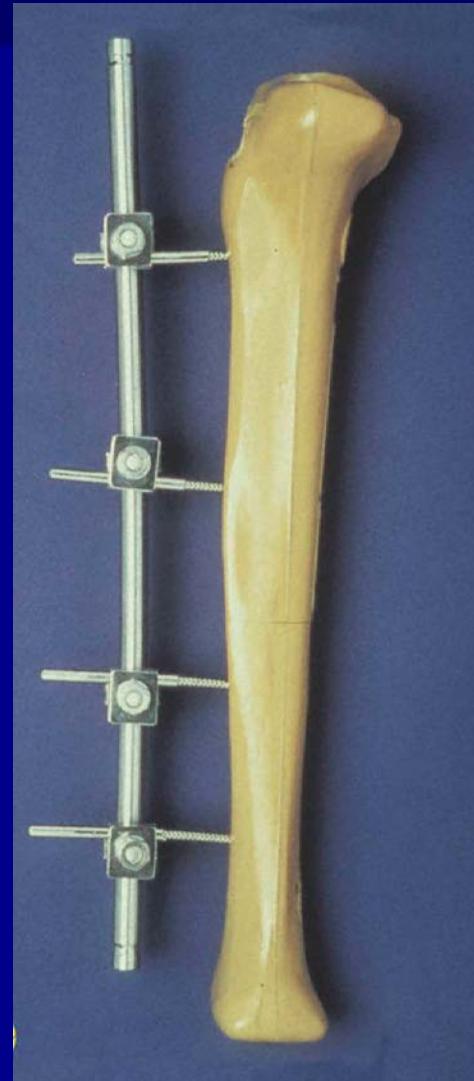
# Hvordan opnås relativ stabilitet?

- Marvsøm



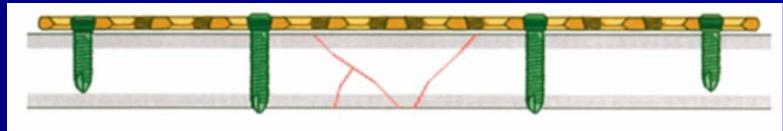
# Hvordan opnås relativ stabilitet?

- Ekstern fiksation



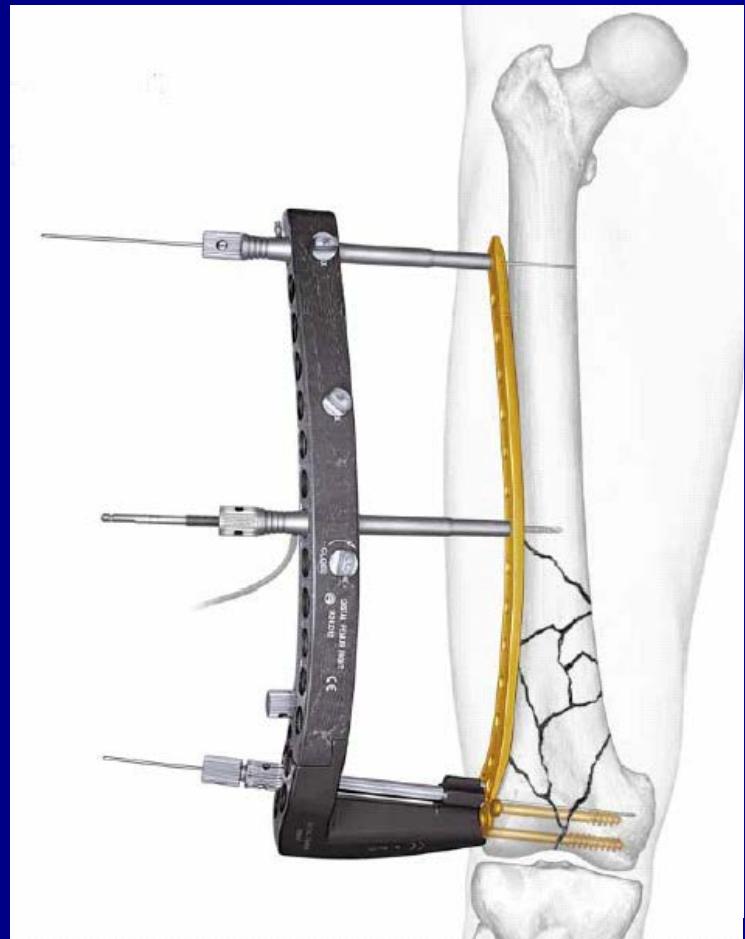
# Hvordan opnås relativ stabilitet?

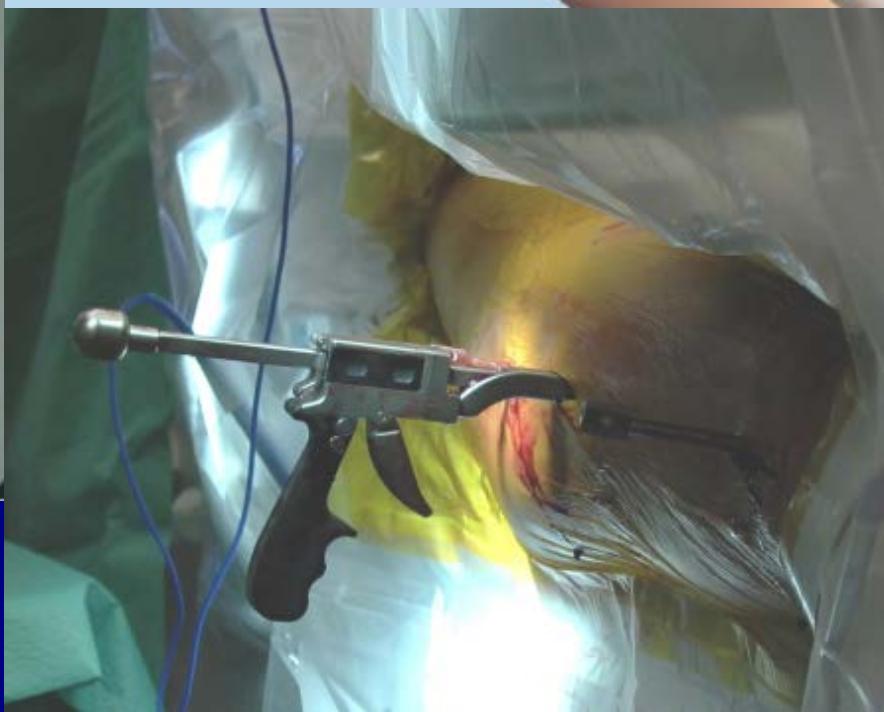
- Bridging



# Hvordan reponeres frakturen ved relativ stabilitet?

- Indirekte reponering





✓<sup>2</sup>  
R



2



21.

# Different principles of fracture fixation

= possible with LCP

Mechanical stability	High = Absolut stability			Low = Relative stability
Metode	Compression		Support	
	Static	Dynamic	Locked	Unlocked
Technique & implants	Lag screw (conventional screws)	Tension band (cerclage)	External support (External fixation)	External support = Conservative treatment (plaster, traction)
	Lag screw & neutralization plate (DCP, LC-DCP, LCP)	Tension band plate (DCP, LC-DCP, LCP)	Intramedullary support (IM-nail)	Intramedullary support (elastic IM-nails, K-wires)
	Compression plate (DCP, LC-DCP, LCP)		Internal extramedullary support	
		Buttress plate (DCP, LC-DCP, LCP)	Bridging with standard plate (DCP, LC-DCP, LCP & conventional screws)	
			Bridging with locked internal fixator (LISS, LCP, LHS)	
Reduction	<i>Direct</i>			<i>Indirect</i>
Bonehealing	<i>Direct</i>			<i>Indirect</i>

**Uanset om der anvendes  
absolut eller relativ stabilitet  
vær kritisk med resultatet**



# Resumé

■ Absolut stabilitet:

Intraartikulære fraktur

Fiksation med kompression  
over frakturen

Heler uden callus dannelse



# Resumé

- Relativ stabilitet:

Ekstraartikulære fraktur

Fiksation som tillader små  
bevægelser over frakturen

Heler med callusdannelse



# Er frakturene helet?

