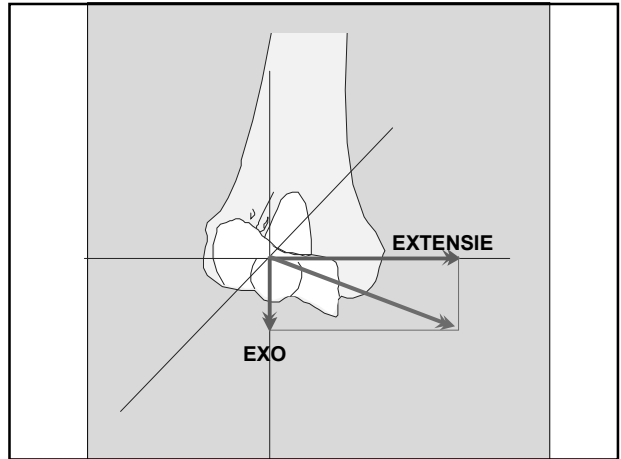
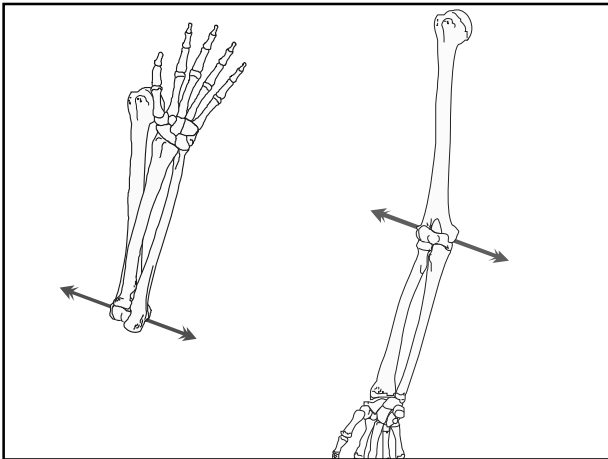


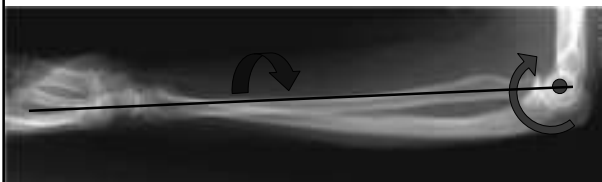
**DE ONDERARM:  
EEN GESLOTEN KINEMATISCHE KETEN**

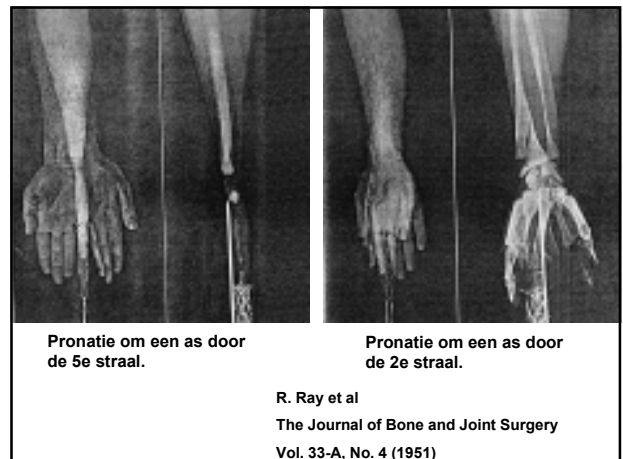
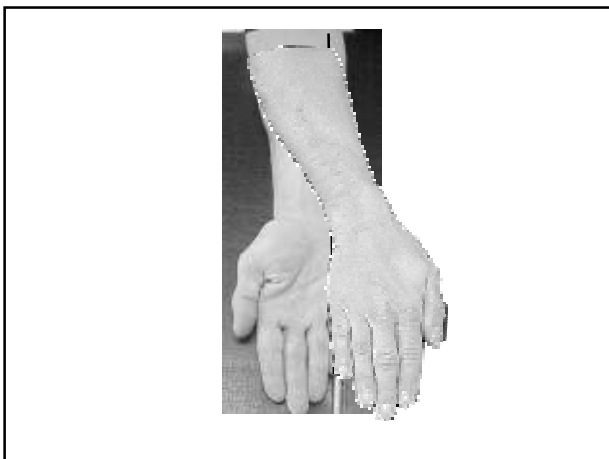
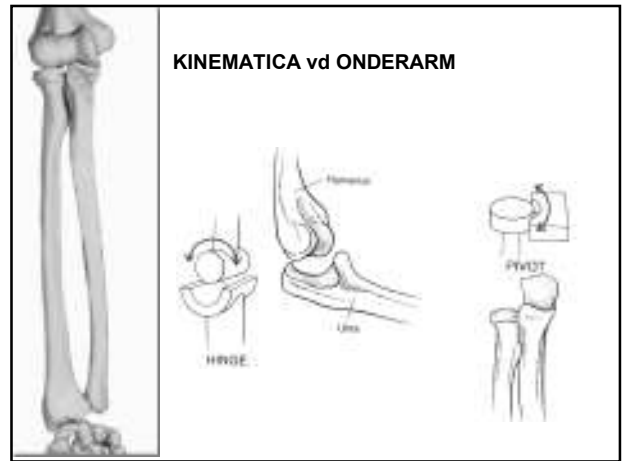
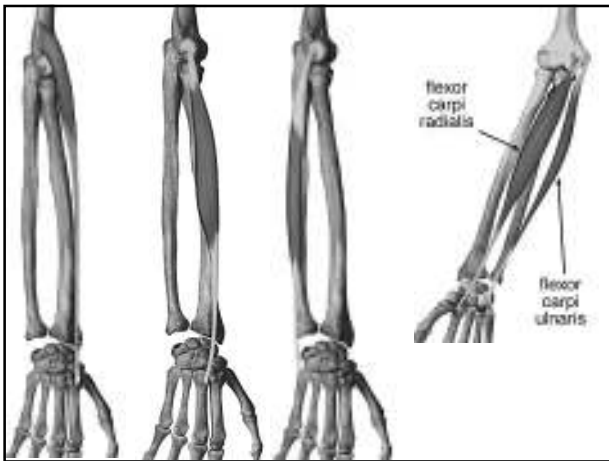
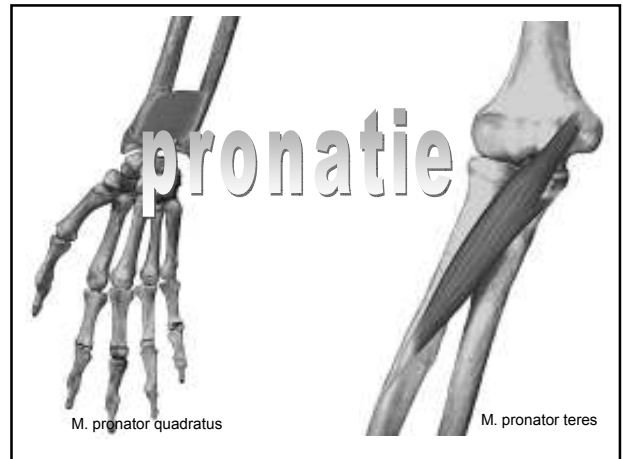
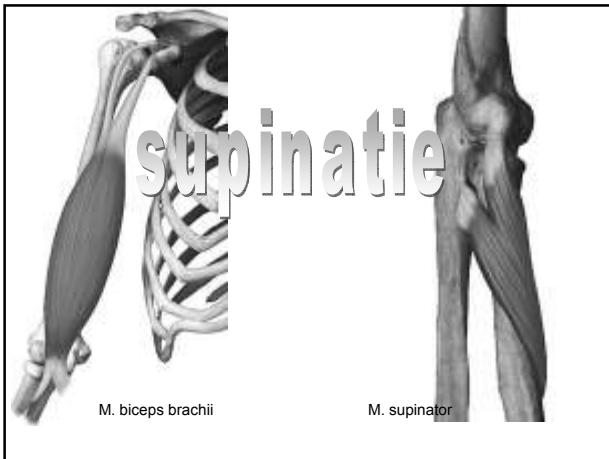


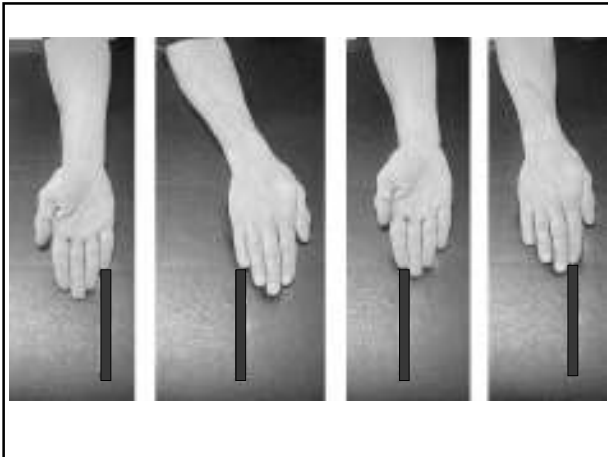
*Aad Lagerberg*



**Bewegingsmogelijkheden van de onderarm**





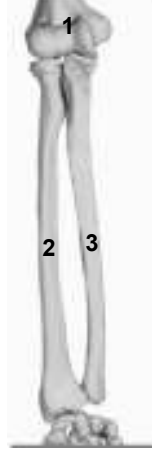


**DE ONDERARM:  
EEN GESLOTEN KINEMATISCHE KETEN**

**Bij een drie-dimensionale analyse:**

**Bij een twee-dimensionale analyse:**

$DF = 3 \cdot (N-1) - \sum C$

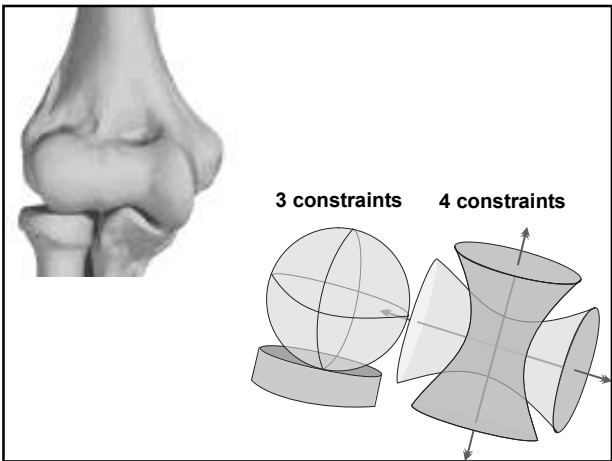



**DF KETEN = 3**

Aantal elementen  $(N-1) = 2$

DF elementen  $(6 \cdot N-1) = 12$

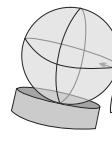
Constraints door verbindingen  $(\sum C) = 9$






**5 constraints ?**

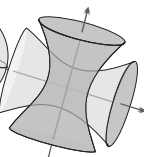
3 constraints



**12**



4 constraints



**12**

