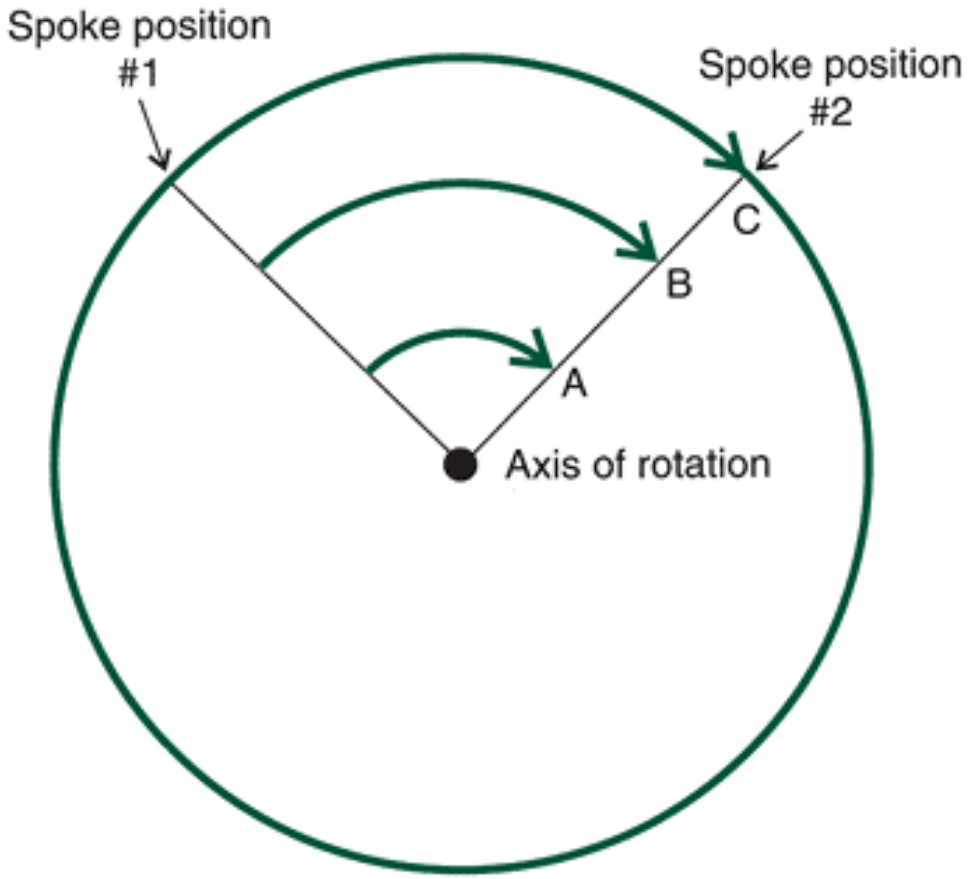
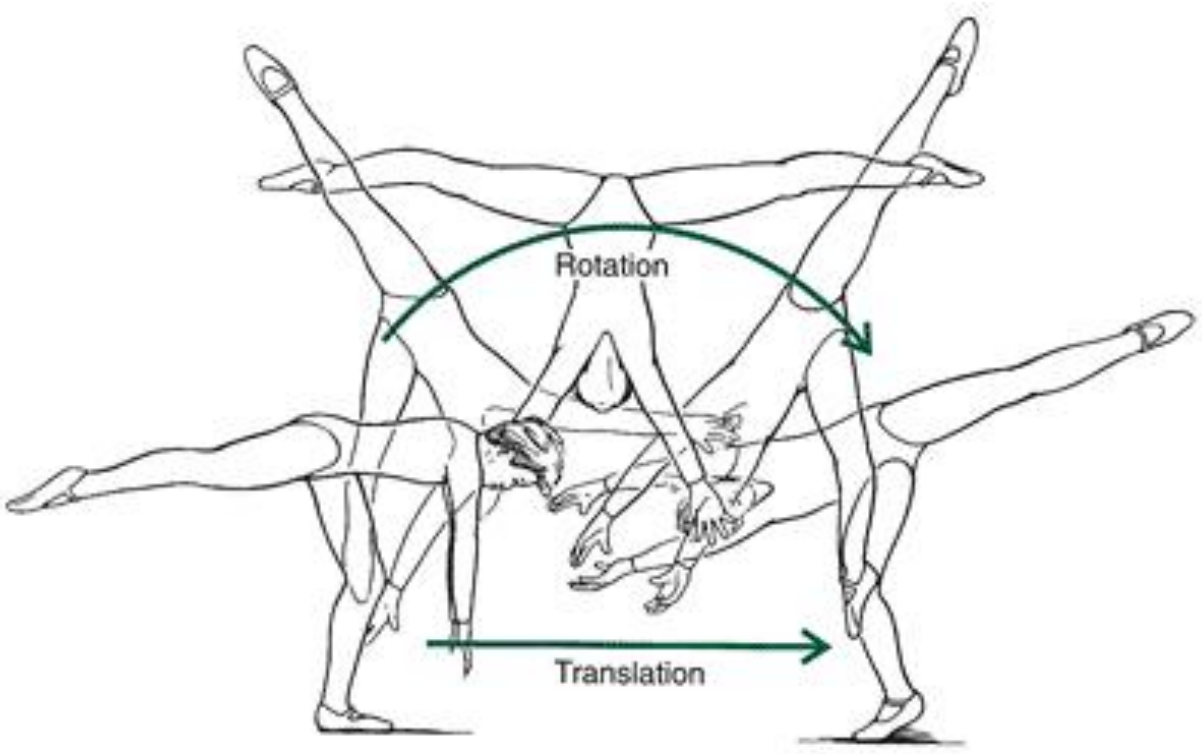
Cinemática angular

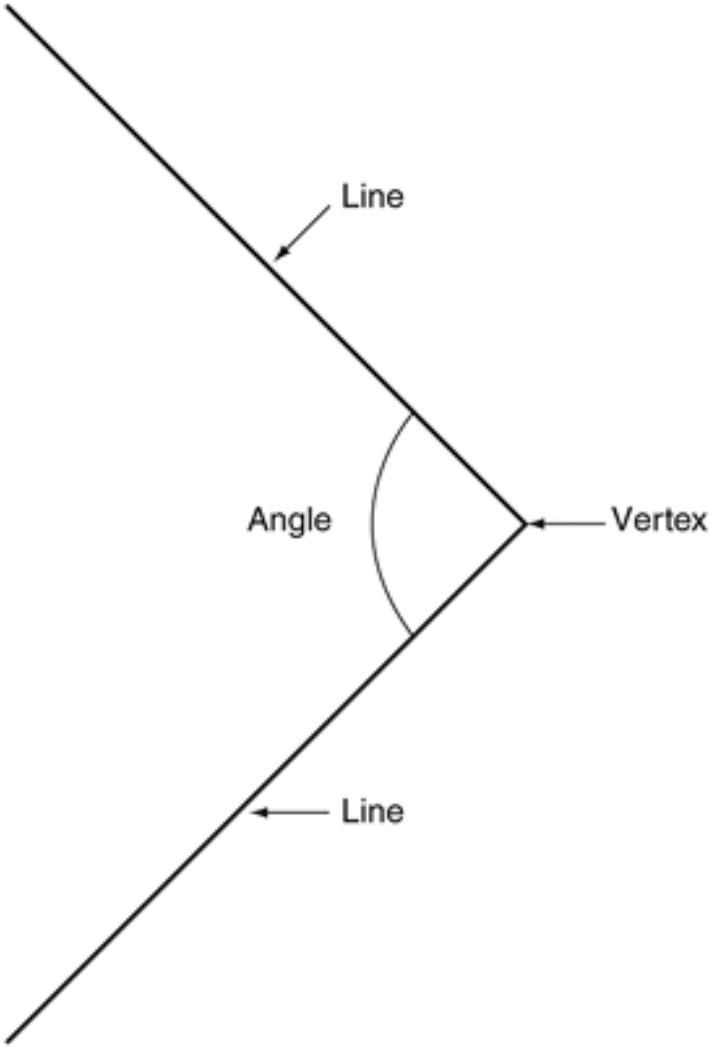
Movimento angular



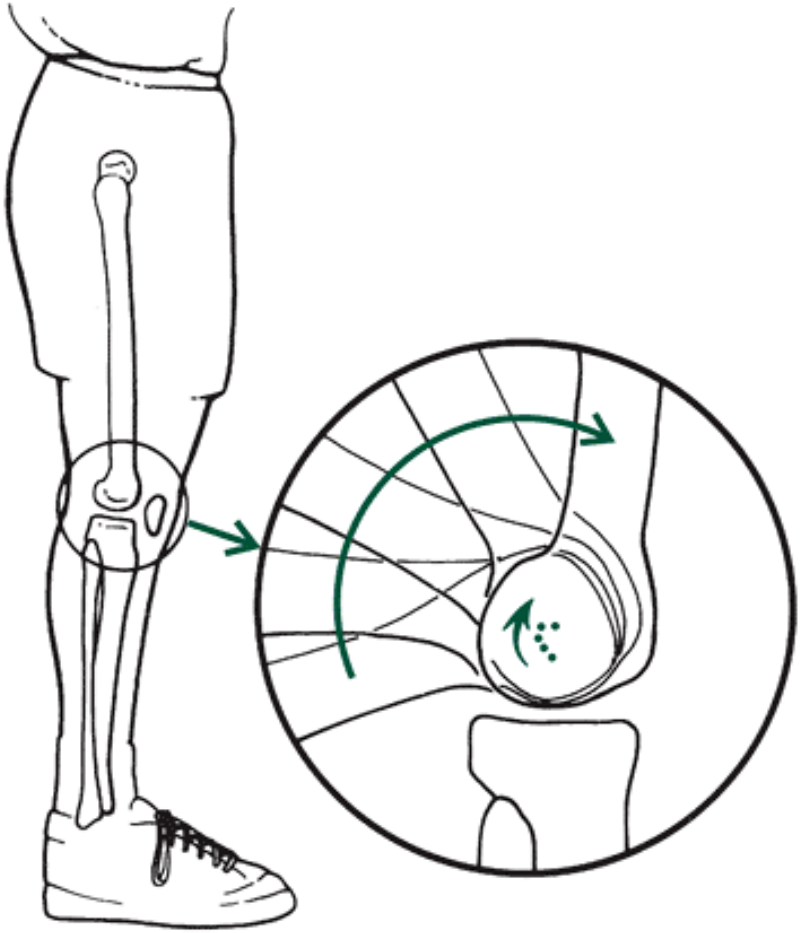
Movimento geral
Rotação + translação



Medida dos ângulos

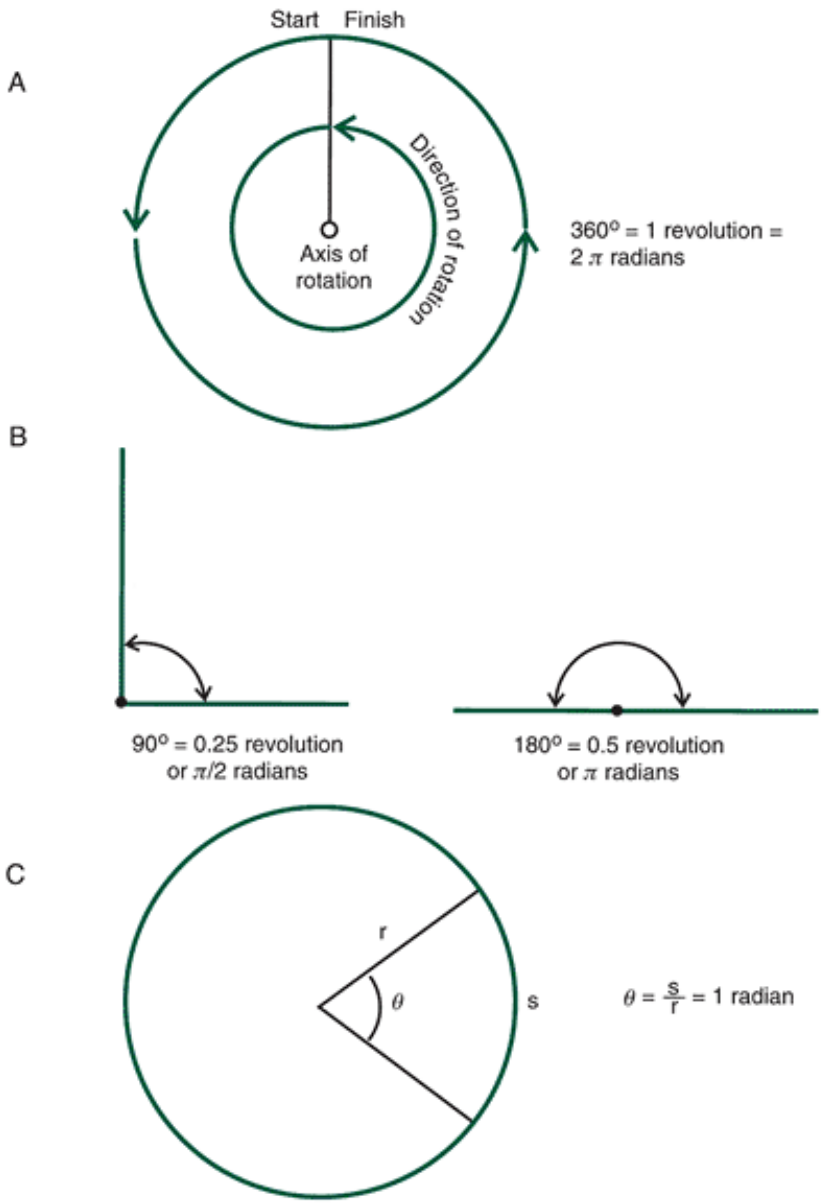


Centro instantâneo de rotação do joelho



Unidades de medidas

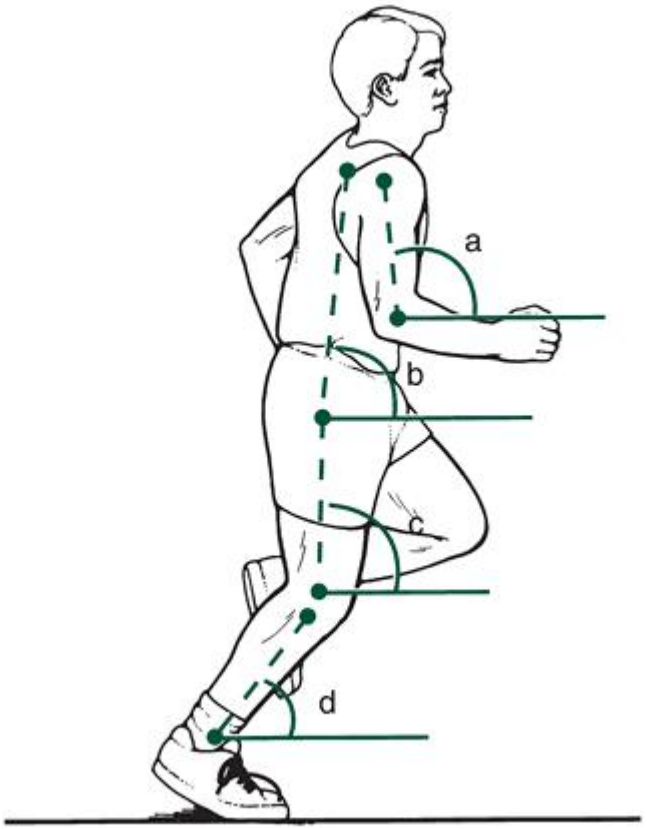
- Grau (°)
- radiano

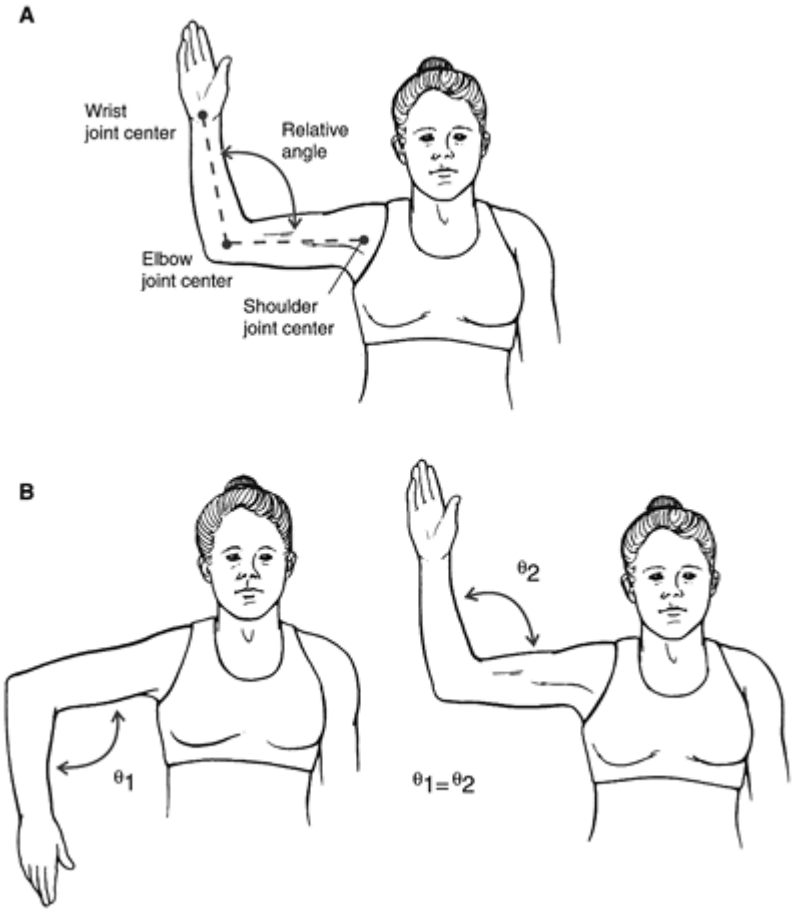


Transformações de unidades

- 1 rad = 57,3°
- 72° = 72°÷57,3° = 1,26 rad
- Radianos para grau
- 0,67 rad = 0,67 rad * 57,3 = 38,4°
- pi π = 3,1416
- 360° = 2π rad; 180° = π rad; 90° = π/2
- Rad para graus → rad * 180/π
- Graus para rad → ângulo ° * π/180

Ângulo absoluto e ângulo relativo





Como calcular?

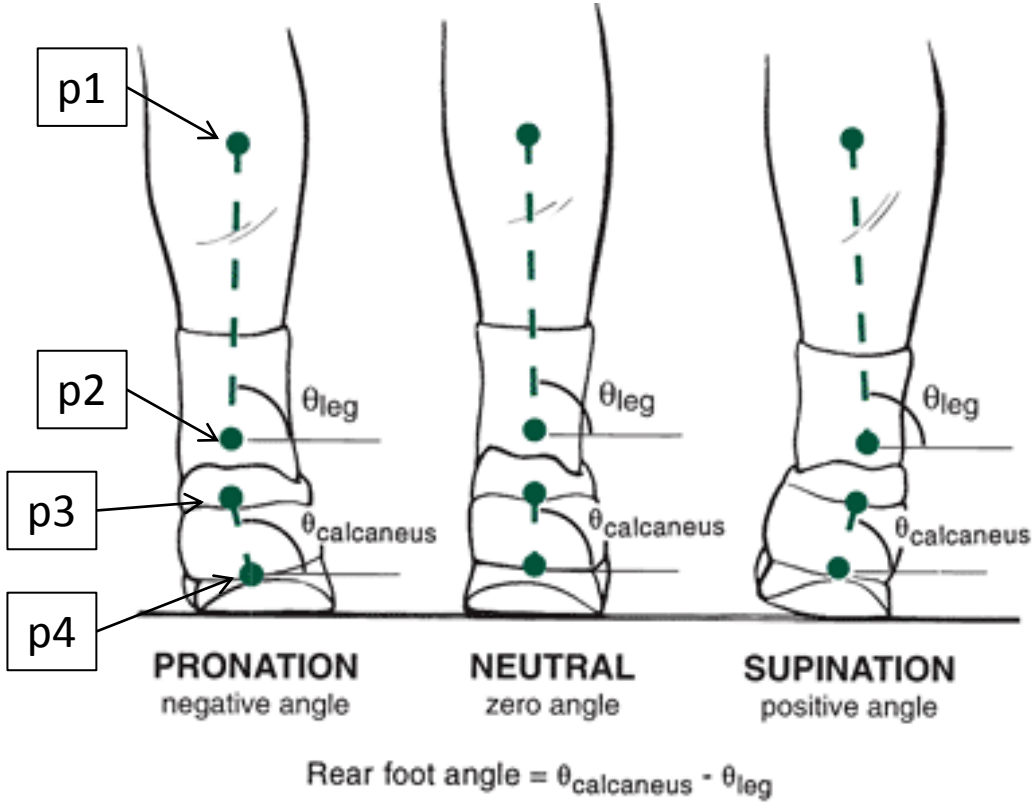
Produto interno dos vetores normalizados

Calcule os ângulo do tornozelo

- p1 = (46.6846 , 53.5654)
- p2 = (44.2861 , 163.2939)
- P3 = (44.8857 , 185.4795)
- P4 = (52.0811 , 214.2607)

- (154.6143, 49.3682)
- (157.6123 , 160.2959)
- (158.2119 , 183.6807)
- (157.0127 , 210.0635)

- (275.7354 , 51.7666)
- (281.1318 , 165.6924)
- (277.5342 , 186.0791)
- (270.9385 , 210.6631)



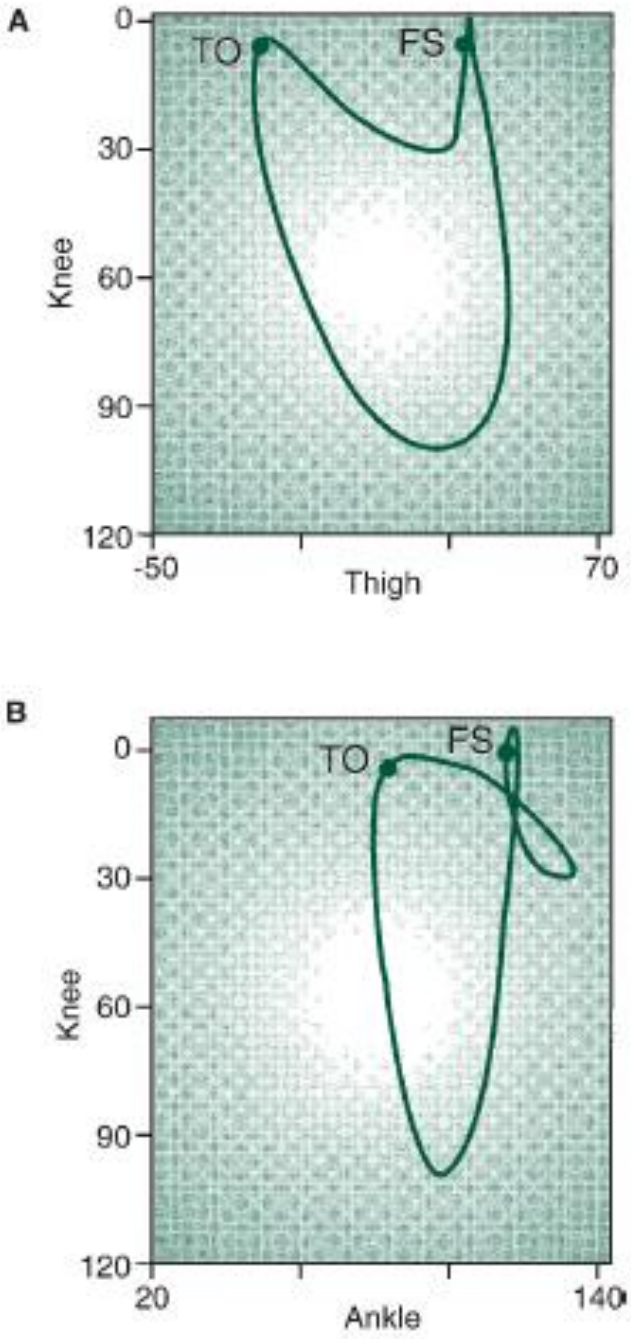


Diagrama de ângulo