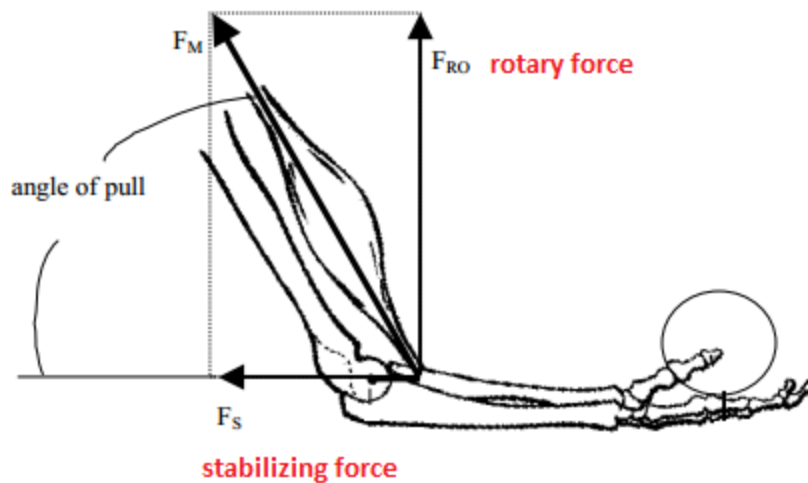


## Components of Muscle Force



Muscle force produces a torque around the center of rotation of the joint on which it is acting. The muscle force can be broken into components to determine its actual effect on the joint

**Angle of pull** The angle between the vector representing muscle force and a straight line from the center of rotation of the joint to the muscle insertion

**$F_M$**  The vector representing the force produced by the muscle itself.

**$F_{RO}$**  The component of muscle force that produces torque at the joint. It stands for rotary force since it's the force vector that produces rotation

**$F_S$**  The component of muscle force. It stands for stabilizing force since, when it points towards the joint, it stabilizes the joint by pulling the bones together. When it points away from the joint it is actually called a dislocating force

$F_{RO}$  and  $F_S$  are always perpendicular to each other. Whether  $F_S$  points towards or away from the joint is dependent on the angle of pull.

**To calculate the values for rotary and stabilizing forces the following formulas should be used**

$$F_S = (F_M) (\cos \alpha)$$

$$F_{RO} = (F_M) (\sin \alpha)$$