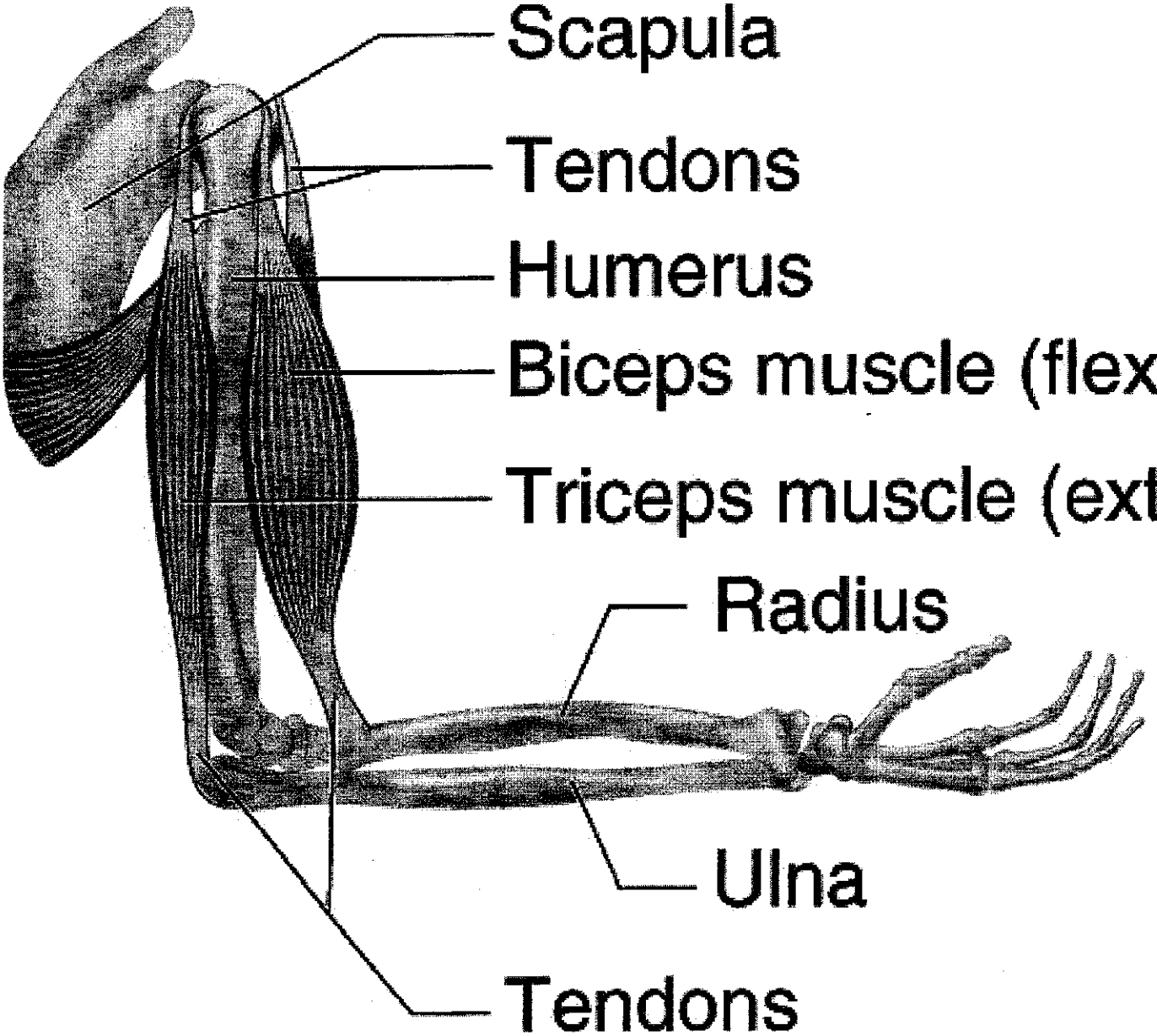
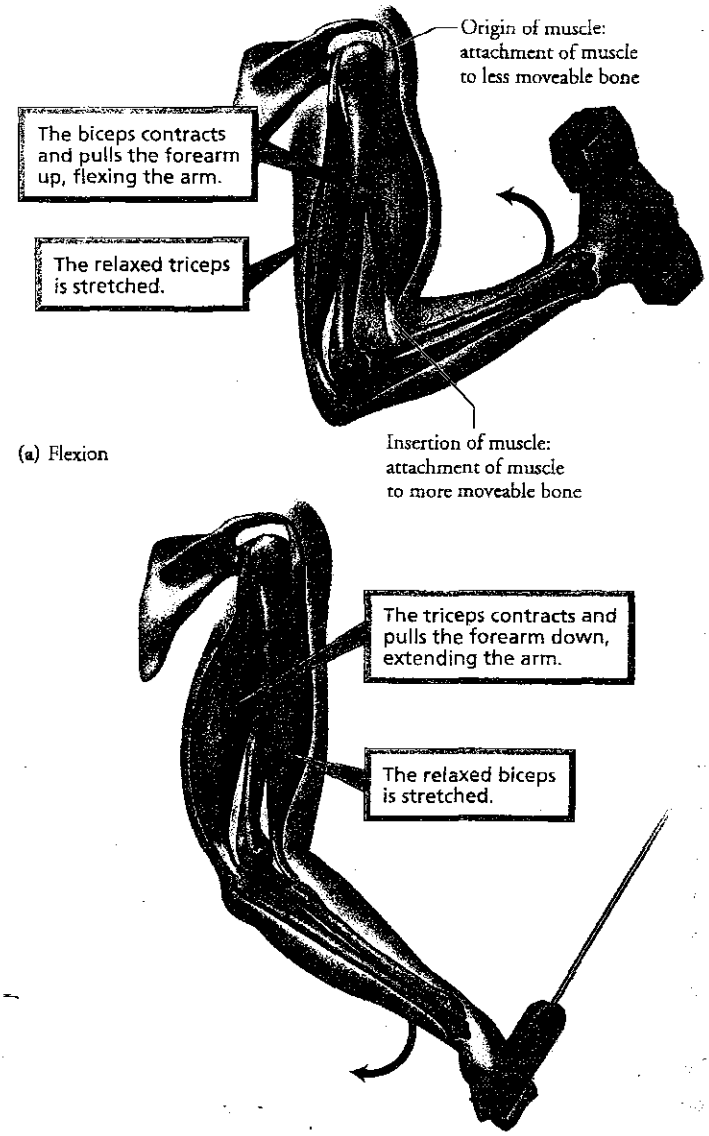
# SKELETAL MUSCULES

APPROX. 600 SKELETAL MUSCULES IN HUMAN BODY.

MOST MUSCULES WORK IN PAIRS (ANTAGONISTIC PAIRS): WHEN ONE CONTRACTS THE OTHER RELAXES.

MUSCULES ARE ATTACHED TO BONES BY TENDONS






Fi The antagonistic action of the triceps and biceps muscles during flexion and extension.

MUSCULES AND TENDONS CAN NOT PUSH THEY CAN ONLY PULL.

TRY TO FEEL YOUR OWN TRICEPS AND BICEPS MUSCULES AND YOUR TENDONS.

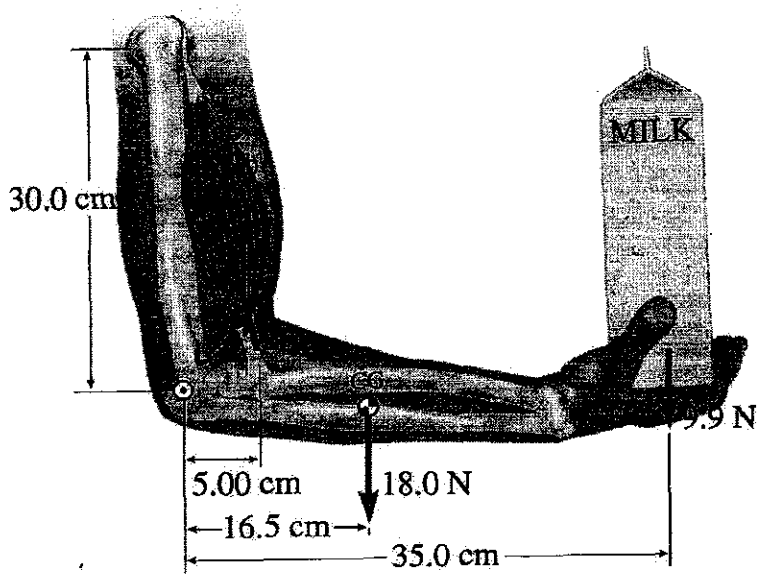
ADVICE!

EXCESSIVE STRESS ON TENDONS CAN CAUSE THEM TO BECOME INFLAMMED (CONDITION CALLED TENDINITIS). TENDONS HEAL SLOWLY BECAUSE THEY ARE POORLY SUPPLIED WITH BLOOD VESSELS THE MOST EFFECTIVE TREATMENT IS REST!
IF IT HURTS, DO NOT USE IT.

# Equilibrium in the Human Body

Example Find the force exerted by the biceps muscle in holding a one liter milk carton with the forearm parallel to the floor. Assume that the hand is 35.0 cm from the elbow and that the upper arm is 30.0 cm long. The elbow is bent at a right angle and one tendon of the biceps is attached at a position 5.00 cm from the elbow and the other is attached 30.0 cm from the elbow. The weight of the forearm and empty hand is 18.0 N and the center of gravity is at a distance of 16.5 cm from the elbow.

EX.

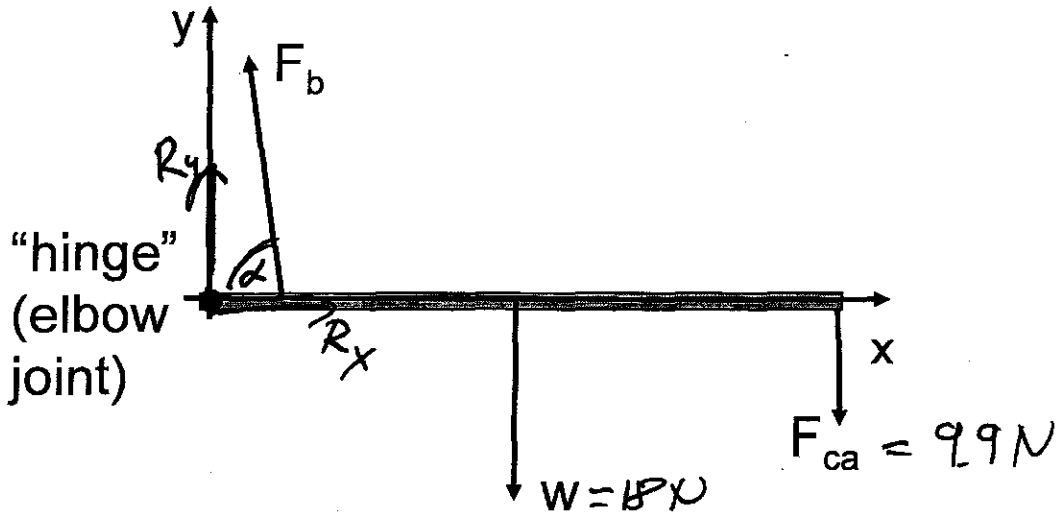



THE BICEPS MAKE 80° WITH THE VERTICAL

$\alpha = 80°$

18.0 N - IS THE WEIGHT OF THE FOREARM AND EMPTY HAND

9.9 N - IS THE WEIGHT OF MILK CARTON




$\Sigma \tau = 0$

$+ F_b (\sin 80°)(0.05m) - (18.0N)(0.165m) - (9.9N)(0.35m) = 0$

$F_b = 130.78\ N.$