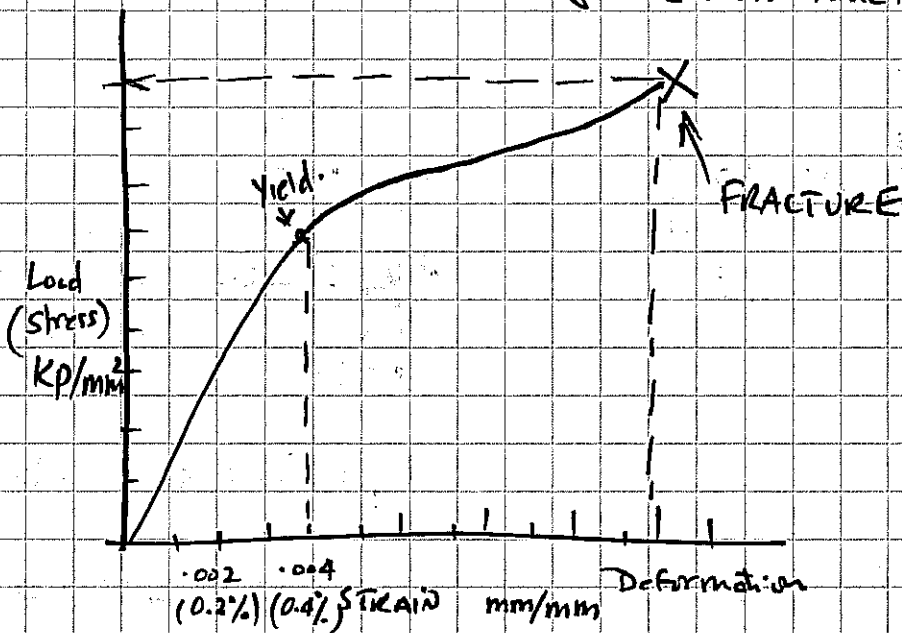
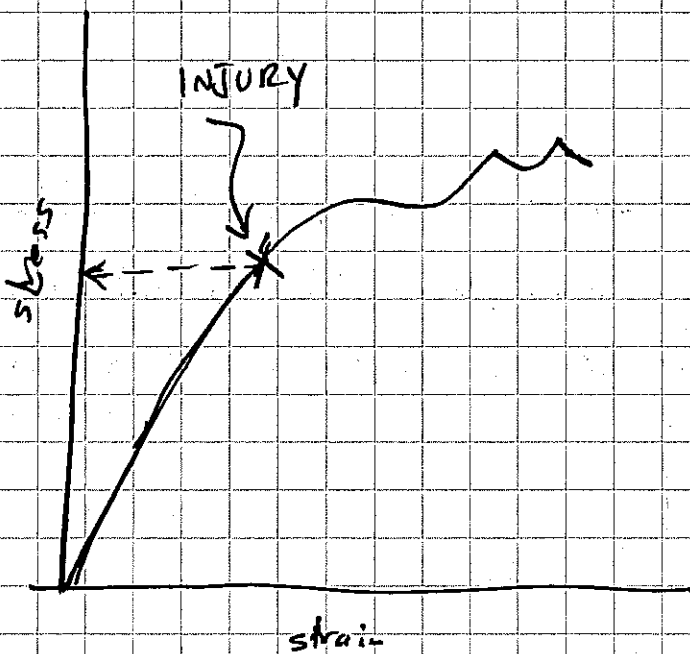


1. Draw stress-strain curve for long bone until fracture.

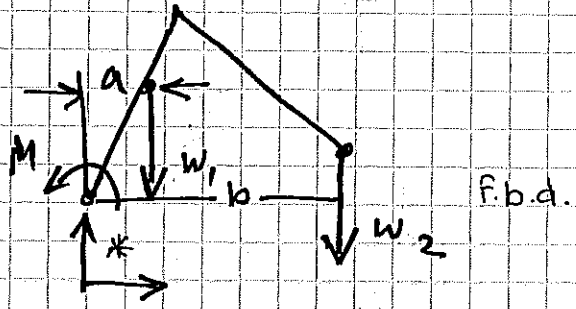
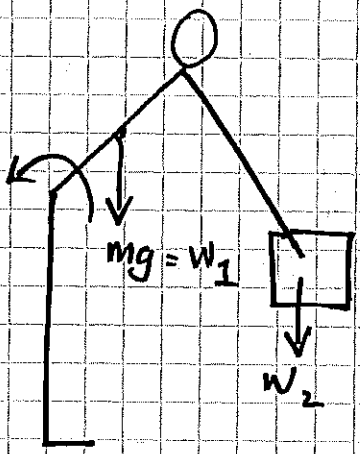
1.



2. Draw a stress-strain curve for muscle, indicate stress at Injury



3 - show why bending your legs while lifting is less stressful on your back. Draw F.b.d.

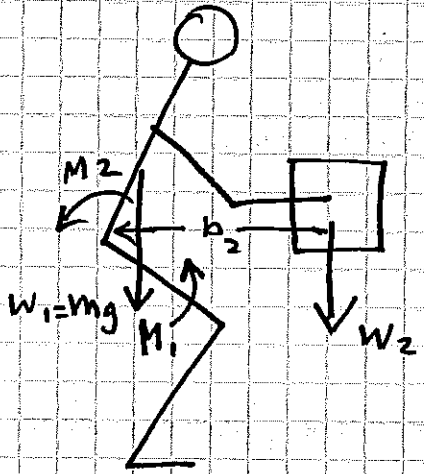


$$M_1 = W_1 \cdot a_1 + W_2 \cdot b_1$$

$$M_2 = W_1 \cdot a_2 + W_2 \cdot b_2$$

$$a_1 < a_2 \text{ and } b_1 < b_2$$

$$\text{so } M_2 < M_1$$



← Bending thigh muscles can provide extra torque M_1 to help lift the weight W_2

* IGNORING BELLY MUSCLES

4. Since W_2 has longer moment arm its contribution will be higher than person weight; While a normal person can lift $> 50 \text{ lb}$ - For Repetitive loading injury occurs at lower stress. (see graph below)

