The moral of the story is that Figure C represents a solution that is easier on the ACL than Figure A. The quads are exerting the same forces in each case; the patellofemoral joint force is the same in each case; yet the shear component of the tibiofemoral force is less than half as large in Figure C as in Figure A (108 N vs. 225 N). This results from lifting a heavier weight at a reduced moment arm. The heavier weight counteracts more of the shear component of the patellar tendon force and hence reduces the force in the ACL. Cool, huh? A logical extension of this problem is to see what happens when this new weight is lowered to 60° of flexion.