

# Study Design

- Sample Size

- Average coefficients of variation ( $CV = 100 \times [\text{mean}/SD]$ )
  - 8% - femoral diaphyseal cortical bone area (microCT)
  - 23% - tibial metaphyseal trabecular bone volume (BV/TV) (microCT)
  - 12% - femoral diaphyseal ultimate moment (“whole-bone strength”, 3-pt bending)
- sample size (n) for power = 0.8,  $p = 0.05$  (for unpaired t-test)

Effect Size (% diff between means)	Cortical Bone Area	Trabecular Bone Volume	Ultimate Moment
10	11	84	24
20	4	22	7
30	3	10	4
40	2	6	4

- $n = 10$  will allow for detection of differences of 11% for bone area, 30% for BV/TV, 16% for ultimate moment