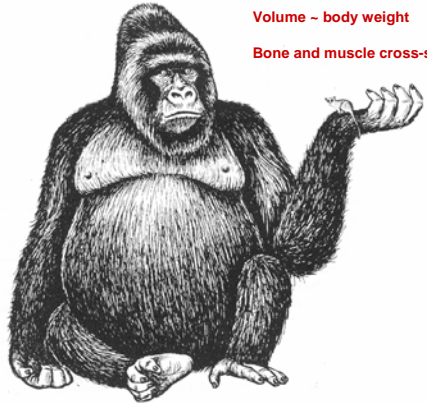


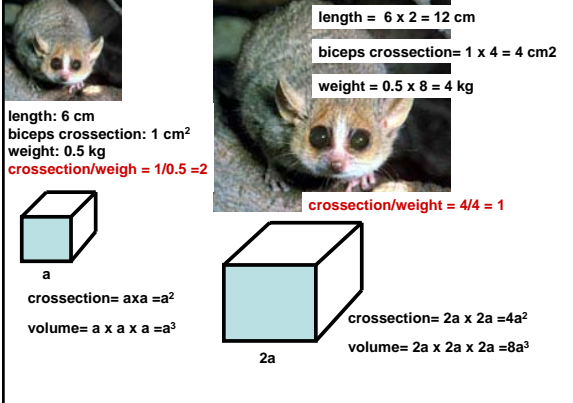
- Babies that can see and move on their own right after birth are called:
 - altricial
 - rational
 - precocial
 - neotenic
- Which of these animals has the most altricial babies?
 - rabbits
 - ducks
 - kangaroo
 - deer
- According to the analysis of lice phylogeny humans began to wear clothes ...
 - 200,000 – 100,000 years ago
 - 40,000 – 70,000 years ago
 - 100,000 – 70,000 years ago
 - 20,000 – 12,000 years ago
- Which tissue underwent reduction in human evolution according to the “expensive tissue hypothesis” ?
 - brain
 - skin
 - muscle
 - intestine
 - liver
- The earliest well documented human use of fire has been documented dates to approximately...
 - 200,000 years ago
 - 1,5 million years ago
 - 800,000 years ago
 - 40,000 years ago

Allometry

- the study of the relation between size and shape
 - during the growth of a single organism;
 - between different organisms within a species;
 - between organisms in different species.
- the study of the relation between size and function



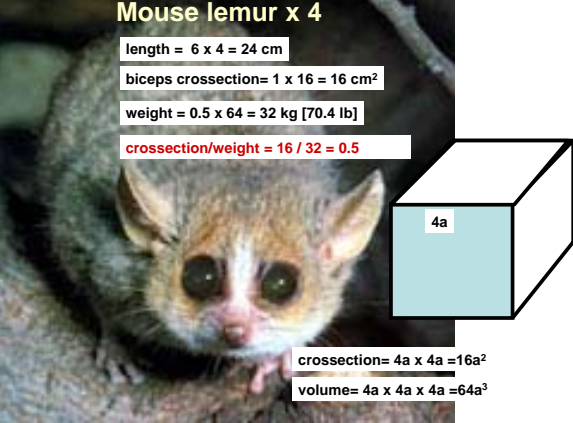
Volume ~ body weight
Bone and muscle cross-section ~ strength



length = $6 \times 2 = 12$ cm
 biceps cross-section = $1 \times 4 = 4$ cm²
 weight = $0.5 \times 8 = 4$ kg
 cross-section/weight = $1/0.5 = 2$
 cross-section/weight = $4/4 = 1$

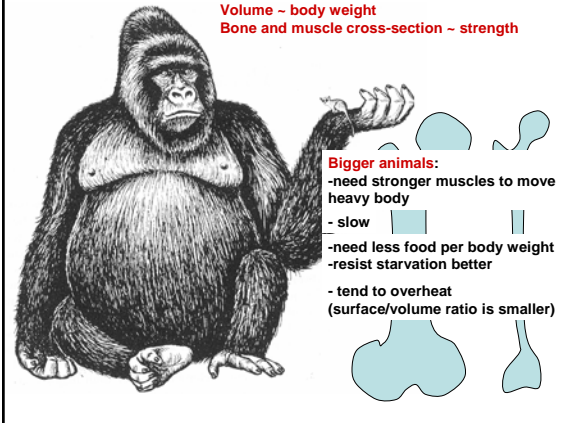
cross-section = $a \times a = a^2$
 volume = $a \times a \times a = a^3$

cross-section = $2a \times 2a = 4a^2$
 volume = $2a \times 2a \times 2a = 8a^3$



Mouse lemur x 4
 length = $6 \times 4 = 24$ cm
 biceps cross-section = $1 \times 16 = 16$ cm²
 weight = $0.5 \times 64 = 32$ kg [70.4 lb]
 cross-section/weight = $16 / 32 = 0.5$

cross-section = $4a \times 4a = 16a^2$
 volume = $4a \times 4a \times 4a = 64a^3$



Volume ~ body weight
Bone and muscle cross-section ~ strength

Bigger animals:
 - need stronger muscles to move heavy body
 - slow
 - need less food per body weight
 - resist starvation better
 - tend to overheat (surface/volume ratio is smaller)

