Calculations and Dosing Tools

Body Surface Area (BSA):[1]

$$BSA\ (m^2) = \left[\frac{height\ (cm) \times weight\ (kg)}{3600}\right]^{0.5}$$

Body Surface Area in Infants, Children or Adults:[2]

$$BSA\ (m^2) = weight\ (kg)^{0.5378} \times height\ (cm)^{0.3964} \times 0.024265$$

Ideal Body Weight (IBW):

IBW (kg, males) = 50 kg + 2.3 × (height in inches − 60)
IBW (kg, females) = 45.5 kg + 2.3 × (height in inches − 60)

Adjusted Body Weight (ABW):

ABW (kg) = IBW (kg) + 0.4 × (total body weight in kg − IBW)

ABW has been recommended for dosing aminoglycosides in obese individuals (i.e., if total body weight is >25% above the IBW)[3,4]

Creatinine Clearance (ClCr):

Estimate using the Cockcroft-Gault equation:

$$ClCr\ (mL/min) = \frac{1.2\ (140 - age)\ (weight\ in\ kg)}{Serum\ creatinine\ (\mu mol/L)}$$

For females, multiply result by 0.85.

References
1. Mosteller RD. Simplified calculation of body surface area. *N Engl J Med* 1987;317(17):1098.
2. Haycock GB, Schwartz GJ, Wisotsky DH. Geometric method for measuring body surface area: a height-weight formula validated in infants, children, and adults. *J Pediatr* 1978;93(1):62-6.
3. Green B, Duffull SB. What is the best size descriptor to use for pharmacokinetic studies in the obese? *Br J Clin Pharmacol* 2004;58(2):119-33.
4. Traynor AM, Nafziger AN, Bertino JS. Aminoglycoside dosing weight correction factors for patients of various body sizes. *Antimicrob Agents Chemother* 1995;39(2):545-8.