

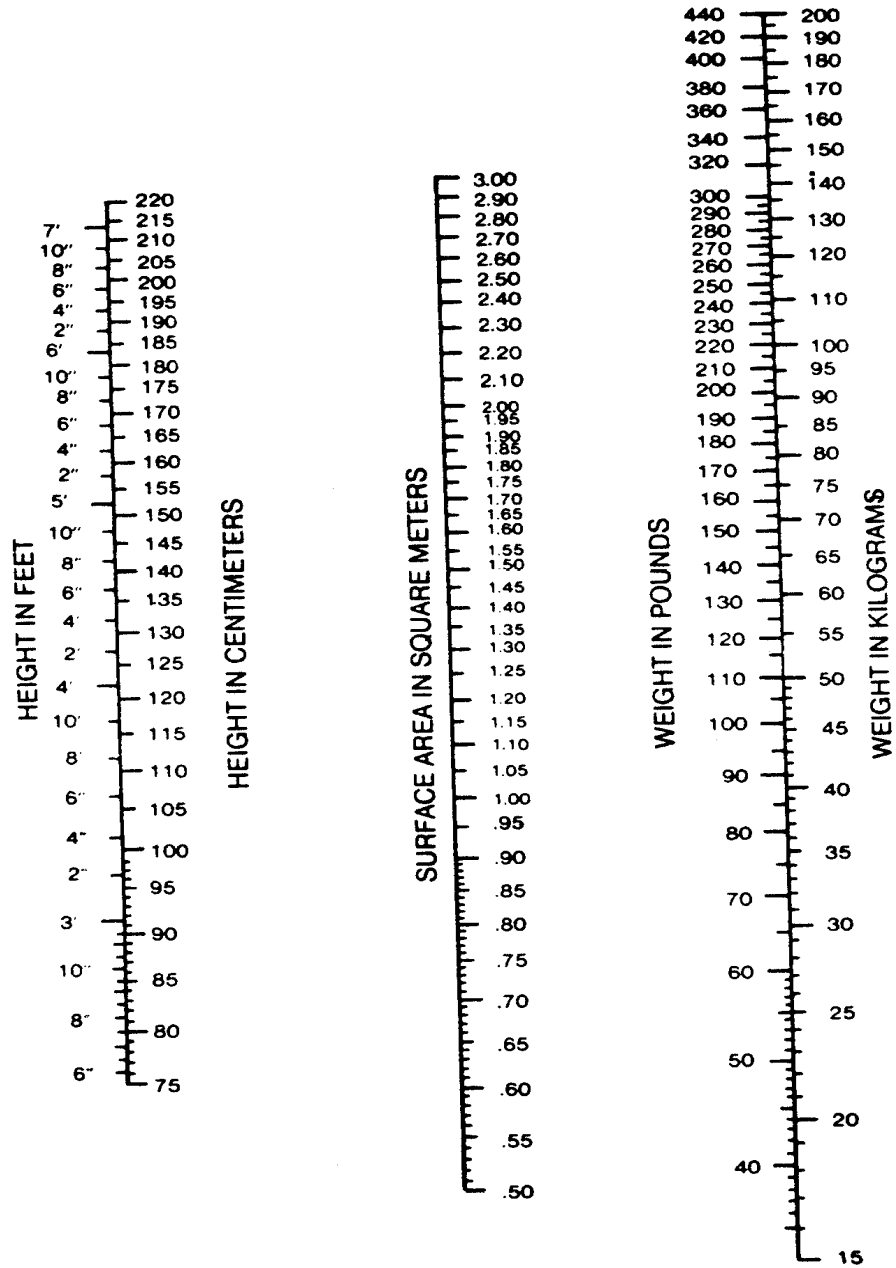
- I. **Creatinine clearance** – measure of glomerular filtration rate which depends on the number of nephrons and their function. Test result can assist in determination of extent fo nephron damage
  - A. Creatinine is a waste product of muscle metabolism.
    1. Normally found in constant amounts in the blood.
    2. Filters easily, not significantly reabsorbed, and easy to measure
  - B. 24 hour urine sample needed; also one blood sample obtained during the urine’s collection time period.
  - C. Normal = 88-137 ml/min. Test reported in whole numbers.
  - D. Determines the extent of nephron damage in known cases of renal disease. Patient can then be monitored and appropriately medicated.
  - E. There are some disadvantages; be sure to consult textbook.
  - F. Creatinine clearance example calculation
    1. Obtain patient body surface area using nomogram.
      - a. On the left, locate the patient’s height (either feet/inches or centimeters)
      - b. On the far right, locate the patient’s weight (either lbs. or kg)
      - c. Using a straight edge, draw a line connecting the two dots and read the surface area from the center scale. Results are in square meters.
    2. Obtain creatinine levels from 24 hour urine and plasma/serum specimens of the patient.
    3. Apply information to the formula.
    4. Must keep in mind (and memorize) - there are 1440 minutes in 24 hours and the average persons body surface area is 1.73 sq. meters.

$$\frac{\text{urine creat. in mg/dl}}{\text{serum creat. in mg/dl}} \times \frac{\text{urine vol. in ml}}{\# \text{ of min. collected}} \times \frac{1.73 \text{ (an average person's surface area)}}{\text{pts surface area in sq. meters}}$$

Example / practice calculations

	Female Patient 1	Female Patient 2	Male Patient 1			
height (ft/in)	5' 10"	5' 6"	6' 1"			
weight (lbs)	160 lbs.	130 lbs.	187 lbs.			
24 hr urine volume (mL)	1620 mL	1200 mL	1370 mL			
urine creatinine mg/dL	85 mg/dL	98 mg/dL	76 mg/dL			
serum creatinine mg/dL	1.3 mg/dL	0.9 mg/dL	0.8 mg/dL			
Creatinine Clearance Results:						

### Nomogram for the Determination of Body Surface of Children and Adults



Name \_\_\_\_\_

Date \_\_\_\_\_

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