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Simplified Calculation of Body-Surface Area

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TO THE EDITOR

Values for body-surface area are commonly used in the practice of internal medicine, particularly to calculate doses of chemotherapeutic agents and index cardiac output and stroke volume. Body-surface area (BSA) is generally calculated from height (Ht) and weight (Wt), according to equations such as the classic 1916 Du Bois formula[1]: BSA (m^2) = 0.007184 x Ht (cm)$^{0.725}$ X Wt (kg)$^{0.425}$. Although many nomograms based on such equations have been published, some are inaccurate,[2] and one is not always readily available when a determination must be made. At our institution, we use a simple, easy-to-remember modification of an equation by Gehan and George,[3] which requires the use of a calculator with a square-root key:

$$\text{BSA } (m^2) = \sqrt{\frac{\text{Ht (in)} \times \text{Wt (lb)}}{3131}}$$

or, in metric:

$$\text{BSA } (m^2) = \sqrt{\frac{\text{Ht (cm)} \times \text{Wt (kg)}}{3600}}$$

If a 73-inch-tall, 175-lb patient is used as an example, the keystroke sequence on most calculators would be: $73 \times 175 = \quad \div 3131 = \quad \sqrt{} = 2.02\ m^2$.

Although a slight degree of accuracy has been lost in making the above equations easy to remember, deviations from accepted values derived from other formulas[1,3,4] are generally less than 2 percent. We have made good clinical application of these equations and believe they may be of benefit to other physicians.

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