# Creatinine Clearance (Cockcroft-Gault Equation)

## INPUTS

|  |  |
| --- | --- |
| Sex | **Options:**   * Female * Male |
| Age | **Options:** |
| Weight | **Options:** |
| Creatinine | **Options:** |
| Height | **Options:** |

## FORMULA

Cockcroft-Gault CrCl, mL/min = (140 – age) × (weight, kg) × (0.85 if female) / (72 × Cr, mg/dL)

Ideal body weight (IBW), Devine equation:

* IBW, kg (male) = 50 + [ 2.3 × (height, inches – 60) ]
* IBW, kg (female) = 45.5 + [ 2.3 × (height, inches – 60) ]

Adjusted body weight (ABW), kg = IBW, kg + 0.4 × (actual body weight, kg – IBW, kg)

## FACTS & FIGURES

The most common formula for determining creatinine clearance, which estimates glomerular filtration rate (GFR); creatinine clearance may over-estimate GFR by 10-20%, but still remains the standard for drug dosing adjustments.

Based on several papers and expert opinions, we provide adjustments to the Cockcroft-Gault equation based on body weight and BMI, as it appears to become less accurate in weight extremes (underweight and particularly overweight/obesity). As recommended by Brown et al and Winter et al, adjustments and estimates are made as follows:

|  |  |  |
| --- | --- | --- |
| Underweight | BMI <18.5 | Calculation uses **actual**/total body weight (i.e., no adjustment) |
| Normal weight | BMI 18.5-24.9 | Calculation uses **ideal** body weight, range uses actual body weight |
| Overweight / obese | BMI ≥25 | Calculation uses **adjusted** body weight, range uses ideal body weight |

## EVIDENCE APPRAISAL