Other Methods

Other methods that could be used to detect kidney disease:

- Abdominal radiography
- Computed tomography (CT)
- Renal ultrasonography
- Renal biopsy

These are used to detect:

- Nephrolithiases
- Shrinking of kidney (sign of CKD)
- Hydronephrosis (water in the kidney)
- Obstruction
- Renal artery stenosis
CrCl Calculations (Cocorofft-Gault Equation)

Cocorofft-Gault Equation

\[
CrCl = \frac{(140 - \text{Age}) \times (\text{IBW or ABW})}{72 \times \text{Scr}} \times (0.85, \text{if female})
\]

- GFR: used to classify patients who have kidney disease (what stage are they in).
  - Does account for ethnicity
- CrCl: used for dosage adjustments for patients with renal disease.
  - Does not account for ethnicity
- If given IBW and ABW, then use the number that is smaller between the two.

\[
\begin{align*}
\text{IBW for a man} &= 50 + 2.3 (\# \text{ of inches over 5 ft.}) \\
\text{IBW for a woman} &= 45.5 + 2.3 (\# \text{ of inches over 5 ft.})
\end{align*}
\]
How to Minimize Kidney Disease

- Protein management
- Vitamin D supplementation
- Hypertension and/or diabetes management

Types of Acute Renal Injury

- Pre-renal
- Intrinsic
- Post-renal

Note: Patients can have CKD and also have AKI at the same time.

Normal Ranges

- Specific gravity: 1.08
- Normal SCr and GFR: 80-120 mg/dL
Causes of Drug Induced AKI
Drug Induced AKI (Acute allergic interstitial nephritis)

- **Penicillins**
- Cephalosporins
  - Penicillins and cephalosporins have cross resistance to each other.
  - However, cephalosporins decrease in cross resistance as you go further in the generations of the cephalosporins.
  - For example, 1st generation of cephalosporins has a 10-20% risk of cross-resistance with penicillins.
- NSAIDs, COX-2 inhibitors