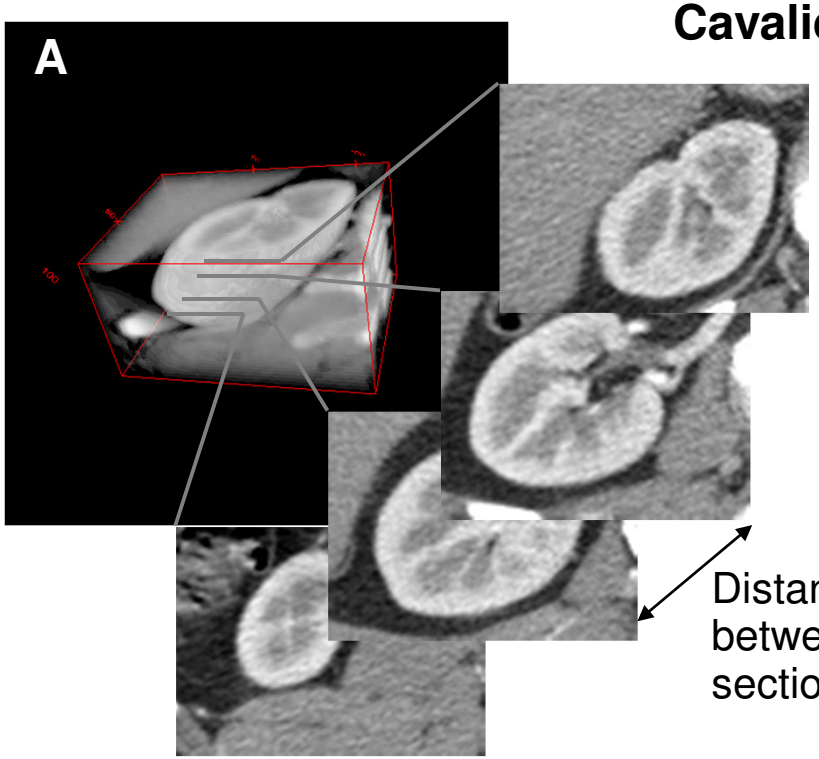
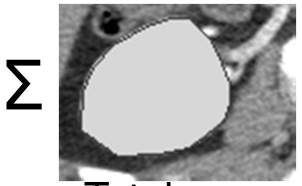
Cavalieri's principle



Distance between sections

X



Total area

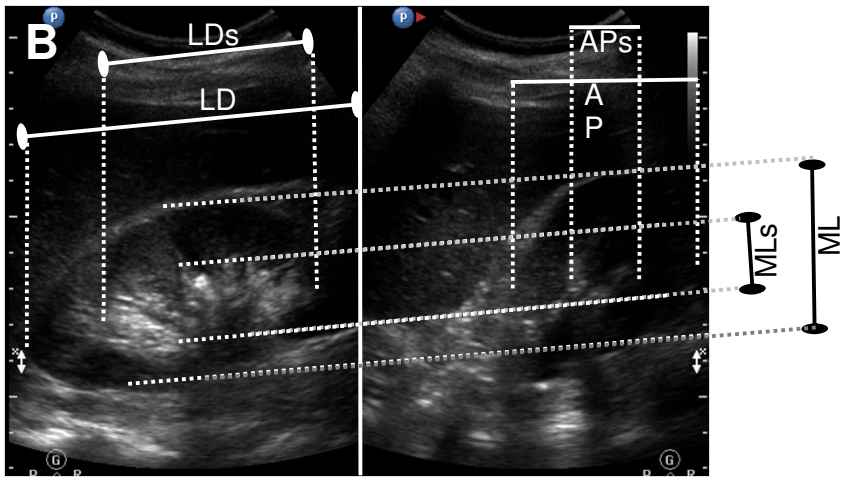
= Total Kidney volume

Parenchyma area

= Kidney Parenchyma Volume

Cortex area

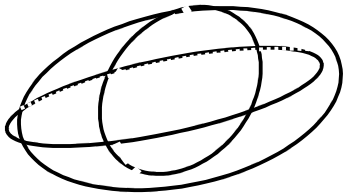
= Kidney Cortex Volume



Longitudinal (coronal) section

Transversal (horizontal) section

≈



Ellipsoid formula:
$V = 4/3 \times \pi \times LD \times ML \times AP$

Ellipsoid KV3 formula:
$84 + 1.01 \times \pi/24 \times LD \times (ML + AP)^2$

Kideny cortex volume =
0.7 x (Total kidney volume – renal sinus volume)