

UREA CYCLE | KREBS - HENSELEIT CYCLE



OVERALL RXN
 $\text{NH}_4^+ + \text{CO}_2 + \text{Aspartate} + 3\text{ATP} \rightarrow \text{UREA} + \text{fumarate} + 2\text{ADP} + 2\text{P}_i + \text{AMP} + \text{PP}_i$

Metabolic Defect

Defect	enzyme
• Hyperammonemia type I	carbamoyl phosphate Synthase I
• Hyperammonemia type II	ornithine transcarbamoylase
• Citrullinemia	Argininosuccinate Synthase
• Argininosuccinic aciduria	Argininosuccinase
• Hyperargininemia	Arginase

Azotemia :- Condition with elevation in blood urea or N_2 metabolites which may or may be associated with renal disease.

Regulation
• Arginase
• ↑ conc. Arginine
• ↑ NAG
• ∴ ↑ urea synthesis
• ↑ protein rich meal
• ↑ NAG (liver)
• ↑ urea synthesis
• CPS-II used in pyrimidine synthesis ① in cytosol.

* Healthy people
Normal blood urea conc.
= 10-40mg/dL
* **urease method**
Diacetyl monoxime (DAM)
process
used for test of kidney
which is based on
blood urea estimation.