

When Ketone Body Production exceeds Usage

- When Cellular Glucose deprivations occurs in
 - Uncontrolled Diabetes
 - Prolonged Starvation
- **Ketosis**
 - High levels of Ketone Bodies in blood and urine
- **Ketoacidosis**
 - Severe ketosis
 - Lowered blood pH,
 - Nausea, Acetone breath
 - **Coma, Death**

Process During Starvation

- Catabolism of muscle proteins increased
- Transdeamination (Transamination followed by Oxidative deamination) reaction of amino acids is increased
- This allows release of Glucogenic Amino Acids
 - Glucogenic AA broken down into either pyruvate, alpha-ketoglutarate, succinyl CoA, fumarate or Oxaloacetate
- Ammonia detoxification and urea production increased initially and decreased as starvation phase prolongs
- Body is in negative nitrogen balance (Condition in which protein catabolism exceeds protein anabolism resulting in tissues losing protein faster than can be replaced)
- Concentration of functional proteins decreases
- Alterations occur in water, electrolyte and acid base balance
 - Reduction in body water
 - Reduction of potassium ions
 - Acidic blood pH due to increased ketone bodies
 - On prolonged phase of starvation there results severe dehydration and acid base imbalance

Basal Metabolic Rate

- BMR- Amount of energy expended while at rest
- In starvation, BMR is decreased