Exocytosis of acetylcholine – 125 vesicles/AP.

Acetylcholinesterase

Acetate → Choline

Reabsorbed into NT

Vesicles reformation

Coated pits - Clathrin

New vesicles

ACETYLCHOLINE IN SYNAPTIC CLEFT
Safety Factor for Transmission at the Neuromuscular Junction; Fatigue of the Junction

- Each impulse causes about three times as much end plate potential as that required to stimulate the muscle fiber.

- **Normal neuromuscular junction is said to have a high safety factor.**

- Stimulation greater than 100 times per second for several minutes

- Diminishes the number of acetylcholine vesicles so much that impulses fail to pass into the muscle fiber.

- This is called **fatigue of the neuromuscular junction**
PTOSIS

Myasthenic patient
Clinical presentation

- Progression of disease
  - Mild to more severe over weeks to months
  - Usually spreads from ocular to facial to bulbar to truncal and limb muscles
  - Often, symptoms may remain limited to EOM and eyelid muscles for years

- Remissions
  - Spontaneous remissions rare
  - Most remissions with treatment occur within the first three years
Clinical presentation

- Co-existing autoimmune diseases
  - Hyperthyroidism
    - Occurs in 10-15% MG patients
  - Rheumatoid arthritis
  - Scleroderma
  - Lupus
Management of Myasthenia gravis

- Anticholinesterases
- Immunosuppressive therapy
- Plasma exchange
- Immunoglobulins
- Thymectomy