Muscle disease:

- Inflammatory myositis:
  - Polymyositis
  - Dermatomyositis
  - IBM

- Myopathy:
  - Duchenne
  - Myotonia
  - Congenital
    - Central core myopathy
    - Myotubular/centronuclear
    - Nemaline rod myopathy
  - Mitochondrial
  - Metabolic

Polymyositis:
- Endomysial mononuclear infiltrates (between and around individual myofibers.)
- Fiber type grouping
- Type II atrophy

Endomysial infiltration
Fiber type grouping
Normal muscle fibers

ATPase histochemical stain showing 3 levels of activity corresponding to type 1-dark, 2a-light, and 2b-intermediate fibers.

Lymphocytes invading muscle myofiber
Dermatomyositis:
- Perifascicular infiltration and atrophy (at the periphery of fascicles)
- Dermatomyositis is a vasculitis, which involves endomysial capillaries and arterioles

Inclusion body myositis:
- The hallmark of IBM is “rimmed vacuoles” in the muscle fibers lined with an eosinophilic rim
- Affected myofibers have vacuoles which contain basophilic granules
- The granules consist of myelinoid membranous bodies and small chunks of amyloid similar to the neurofibrillary tangles of Alzheimer's disease

Duchenne dystrophy
- Muscle fiber degeneration (rounded and variable size)
- Increased fat and connective tissue
**Myotonic dystrophy**
- More internal nuclei than any other muscle disorder.
- Longitudinal section shows that the internal nuclei within the muscle fibers also tend to line up.
- Increase in connective tissue

**Central Core Myopathy**
- Pale central core in nearly every type I muscle fiber (results from absence of mitochondria)

**Myotubular/Centronuclear Myopathy**
- Centrally-located nuclei with perinuclear halos. (surrounding area clear due to absence of myofibrils)
- Different from myotonic dystrophy as only single internal nucleus per muscle fiber
Nemaline Rod Myopathy
- Trichrome stain showing dark fibrillar material (nemaline rods) within the muscle fiber

Mitochondrial Myopathy:
- Trichrome stain showing subsarcolemmal accumulations of “ragged red fibers” in muscle cell
- The red color of these fibers is due to large numbers of abnormal mitochondria that represent a compensatory proliferation

Denervation atrophy
- Small angular fibers
- Fiber type grouping then group atrophy