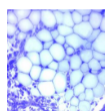


Practice no. 12 – Muscle tissue (deadline 8. 5. 2020)

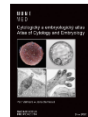
1. Characterize and graphically schematize ultrastructure of a muscle fiber (rhabdomyocyte). Draw into the scheme: nuclei, sarcolemma, myofibrils, t-tubuli, sER, mitochondria. Indicate where a triad is located.
2. Graphically schematize structure of the sarcomere as it appears in the TEM. Into the scheme position: actin and myosin myofilaments and other proteins (α -actinin, titin, nebulin). Determine which parts of the sarcomere change their size during contraction. Estimate the size of sarcomere (in μm) and extent of contraction (in %).
3. Schematically describe mechanism of muscle contraction. Determine the mechanism of action and position it into the scheme of contraction: botulotoxin, kurare and *myasthenia gravis* disorder.
4. How are the biomechanical forces transmitted to surrounding connective tissue, tendons and ligaments? What is the role of protein dystrophin? What is the dystrophin-associated pathology?
5. How is the connective tissue arranged in muscles? Graphically schematize endomysium, perimysium and epimysium.
6. What are the principal differences between cardiac and skeletal muscle tissue? Is there any difference in structure of myofibrils and sarcomere?
7. What is the structure and function of intercalated discs?
8. Graphically schematize the structure of the leiomyocyte. How is the cytoskeleton in leiomyocyte organized to perform contraction? How the contraction is regulated?
9. What is the embryonic origin of skeletal, cardiac and smooth muscle tissues?
10. Describe the “myoblast”, “myotube” and “(myo)satellite cells” and position them correctly into the muscle development scheme.

Recommended study resources:

Histologický atlas
Doporučený studijní materiál



Cytologický a embryologický atlas
Doporučený studijní materiál



presentations in 