HAP Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Chapter 8 – Case Studies Period \_\_\_\_\_\_\_\_\_\_\_\_\_

De Stigter

**Muscle Physiology Case Histories - Case 10**

Parents of a 3-year-old noticed that their daughter was walking "on her toes," had a waddling gait, fell frequently and had difficulty getting up again, and was not able to run because of the difficulty in raising her knees. At age five, there was progressive muscular weakness and muscle wasting. Weakness of the trunk muscles led to increased lordosis and a protuberant abdomen. At age nine, she was confined to a wheelchair. Contractures appeared, first in the feet, as the gastrocnemius muscles tightened.

1. **This hereditary X-linked recessive disease characterized by progressive muscular weakness is...**
2. **What does dystrophy mean? Why is this term used to describe this case?**

1. **What muscles would be involved in walking “on the toes”? Which muscles are “weakening”?**

1. **Name the trunk muscles that weaken in certain cases of lordosis and abdominal protuberance.**

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**Muscle Physiology Case Histories - Case 4**

A 17-year-old was working vigorously with a summer construction crew building a new greenhouse. In the intense heat of the day, she began to experience severe pain in the muscles of her limbs and carpopedal spasms. The cramping made her muscles feel like hard knots. The foreman of the crew instructed the young lady to drink some salt water and rest a while.

1. **What is the cause of the cramping?**
2. **Describe carpopedal spasms.**
3. **Why is the ingestion of salt and water beneficial?**

**Muscle Physiology Case Histories - Case 5**

Prior to intubation for a surgical procedure, the anesthesiologist administered a single dose of the neuromuscular blocking agent, succinylcholine, to a 23-year-old female to provide muscular relaxation during surgery and to facilitate the insertion of the endotracheal tube. Following this, the inhalation anesthetic was administered and the surgical procedure completed.

1. **Beginning with depolarization at the neuromuscular junction, describe the normal sequence of events which lead to muscle contraction.**

1. What prevents acetylcholine (ACh) from accumulating in the neuromuscular junction and causing a sustained contraction in a normal individual?

1. Succinylcholine acts as a depolarizing agent that prevents repolarization of the nerve. Therefore, no further ACh is released until the drug is cleared. Name another site within the neuromuscular junction that might be affected to prevent muscle contraction. (Hint: curare acts by this mechanism.)

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