**Case Study: Muscle**

Name of the Student

Instructor

Institutional Affiliation

Date

1. **Name the muscles severed during the amputation event.**

The muscles that were severed during the amputation were those that are near the distal forearm and include muscles such as the Brachioradialis, Extensor carpi radialis brevis, Extensor carpi radialis longus, Extensor carpi ulnaris, Extensor digitorum, Extensor digiti minimi.

1. **If the patient were no longer to properly pronate his arm, which muscle do you think has been compromised?**

Pronating the arm involves movement of the forearm supported by the various muscles that are overlaid by the superficial group of the forearm flexors. If the patient is unable to pronate, it is likely that their pronator quadratus muscle is compromised. The muscle is thin and flat and lies within the anterior component of the forearm.

1. **In general, a patient with a severed limb has a smaller window of time for successful replantation when compared with finger replantation surgery. This is in part due to the difference in tissue composition of the two anatomical structures. What does this say about the metabolic demands for muscles, cartilage and bone? Why do you suppose that is?**

That shows that the metabolic demand for muscles, cartilages and bone are much higher when one loses a limb compared to when they lose a figure. The person with the severed limb has a shorter time for successful replantation on that the major muscles that control the functions of the arm are destroyed. The high metabolic demand in the area thus is for the motor nerve that has been served that requires to completely heal to allow any form of movement. The process is also time consuming as it takes a longer while to heal from replantation of the limb. The finger on the other hand is easier and a quicker process as the muscles that are responsible for its movement are located in the forearm. Replanting the limb therefore requires more muscle, bone and cartilage to grow and develop while for the finger the muscles are bruised but not completely damaged.

1. **What tissue type can be found bridging the two halves of the once severed muscle bellies? Why? (Hint: How do muscles grow, hyperplasia or hypertrophy?)**

The connective tissues can be found at the bridging halves of the once severed muscle bellies. The connective tissue forms the tendons that attach the muscle to other structures such as the bones. The connective tissues are fibrous tissues that allow the regeneration of new tissue (hypertrophy).

**Reference**

Meyer, V. E. (2003). Upper Extremity Replantation--A Review (Links to an external site.). European Surgery, 35(4), 167-173.