

## Laboratory Report

### Muscular System – Muscles of the Upper Body

#### Structure of Skeletal Muscles and Skeletal Muscle Fibers

1. Complete the following statements:
  - a. The tendon is a tough fibrous connective tissue that attaches a muscle to the periosteum of a bone.
  - b. The sarcolemma is the cell membrane of a muscle fiber.
  - c. A myofibril consists of actin and myosin myofilaments.
  - d. Synergistic muscles work together to produce a particular movement at a joint.
  - e. The perimysium binds muscle fibers into functional bundles called fasciculi.
2. List the characteristics of muscles that are classified on the basis for the following fiber arrangements.

convergent fan-shaped muscles whose fibers converge at the insertion point; moderate endurance and strength

parallel long, strap-like muscles with parallel fibers; good endurance but not especially strong

sphincter circular, parallel arranged fibers surrounding a body orifice; good dexterity and moderate endurance

pennate fibers positioned along a tendon; many fibers per unit area of muscle, strong dexterous muscles that fatigue quickly

3. Explain how the names of the following muscles were derived:

external abdominal oblique muscle located externally in abdominal region with fibers running in an oblique direction

triceps brachii muscle with three heads located in the brachium

trapezius trapezoid-shaped posterior muscle

coracobrachialis attachments on coracoid process of scapula and brachium

4. List the joint(s) that each of the following muscles influences as it contracts:

temporalis muscle                      temporomandibular joint

palmaris longus                         wrist

infraspinatus                            shoulder

biceps brachii                          elbow and radioulnar joint

7. Identify the muscles that fit the following descriptions:

<b>Description</b>	<b>Muscle</b>
a. Straplike muscle that originates on the anterior shaft of the humerus and inserts on the coronoid process of the ulna; synergistic with the biceps brachii muscle	<b>Brachialis</b>
b. Short, straplike muscle that originates on the coracoid process of the scapula and inserts on the shaft of the humerus; synergistic with the subscapularis muscle	<b>Coracobrachialis</b>
c. Small, deep muscle that originates on ribs 3 through 5 and inserts on the coracoid process of the scapula; synergistic with the serratus anterior muscle	<b>Pectoralis minor</b>
d. Large, straplike muscle that originates on the lateral epicondyle of the humerus and middle shaft of the ulna and inserts on the base of the fifth metacarpal bone; extends and adducts the wrist	<b>Extensor carpi ulnaris</b>

Using the **Muscle Man model**, identify the following muscles:

Trapezius	<u>34</u>	Infraspinatus	<u>60</u>
Rhomboids	<u>59</u>	Pectoralis major	<u>51</u>
Levator scapulae	<u>36</u>	Deltoid	<u>50</u>
Pectoralis minor	<u>52</u>	Latissimus dorsi	<u>63</u>
Serratus anterior	<u>54</u>	Subscapularis	<u>67</u>
Teres minor	<u>69</u>	Sternocleidomastoid	<u>28</u>
Teres major	<u>61</u>	Masseter	<u>27</u>
Temporalis	<u>14</u>	Supra spinatus	<u>66</u>

Using the **plastic skeleton**, list the number (and letter if applicable) which corresponds to the attachment (origin red and insertion blue) of the following muscles: [Try to visualize the action of these muscles.]

Masseter	<u>12</u>	Sternocleidomastoid	<u>20,20a</u>
Temporalis	<u>1</u>	Trapezius	<u>25</u>
Rhomboideus major	<u>48</u>	Rhomboideus minor	<u>49</u>
Pectoralis minor	<u>58</u>	Serratus anterior	<u>60</u>
Teres minor	<u>75</u>	Teres major	<u>76</u>
Biceps brachii	<u>78a,b</u>	Pectoralis major	<u>57 a,b,c</u>
Deltoid	<u>72</u>	Latissimus dorsi	<u>47</u>
Supraspinatus	<u>73</u>	Infraspinatus	<u>74</u>
Subscapularis	<u>77</u>	Triceps brachii	<u>81 a,b,c</u>

Using the **muscular upper limb** model, identify the following muscles:

Teres major	<u>5</u>	Teres minor	<u>4</u>
Deltoid	<u>6</u>	Supraspinatus	<u>2</u>
Infraspinatus	<u>3</u>	Subscapularis	<u>1</u>
Triceps brachii	<u>10,11,12</u>	Biceps brachii	<u>7</u>
Brachialis	<u>8</u>	Brachioradialis	<u>13</u>
Supinator	<u>28</u>	Pronator teres	<u>16</u>
Anconeus	<u>27</u>	Coracobrachialis	<u>9</u>

Using the **Muscle Man** model, identify the following muscles:

Biceps brachii	<u>71</u>	Pronator teres	<u>74</u>
Brachioradialis	<u>82</u>	Supinator	<u>86</u>
Triceps brachii	<u>70</u>	Brachialis	<u>73</u>
Coracobrachialis	<u>72</u>		

Flexors:

Flexor retinaculum	<u>88</u>
Flexor carpi ulnaris	<u>77</u>
Flexor carpi radialis	<u>75</u>
Flexor digitorum superficialis	<u>85</u>
Palmaris longus	<u>76</u>
Flexor pollicis brevis	<u>89</u>

Extensors:

Extensor reinaculum	<u>87</u>
Extensor carpi radialis longus	<u>81</u>
Extensor carpi radialis brevis	<u>80</u>
Extensor carpi ulnaris	<u>78</u>
Extensor digitorum	<u>79</u>
Extensor pollicis brevis	<u>83</u>
Abductor pollicis longus	<u>84</u>

Using the **muscular upper limb** model, identify the following muscles:

Flexors:

Flexor carpi radialis 17

Flexor carpi ulnaris 19

Flexor digitorum superficialis 20

Palmaris longus 18

Extensors:

Extensor carpi ulnaris 26

Extensor carpi radialis longus 14

Extensor carpi radialis brevis 15

Extensor digiti minimi 25

Extensor digitorum 24