

Biology 3B Laboratory
Muscles of Vertebrate Animals: Shark, Mudpuppy and Rat

I. The Spiny Dogfish, *Squalus acanthias*

a. External Anatomy

- **placoid scales**
- **2 dorsal fins with spines),**
- **caudal fin (note shape of lobes)**
- **pectoral fins(1 pair)**
- **pelvic fins(1 pair)**
- **claspers (present or absent, male or female)**
- **lateral line**
- **pair of spiracles**
- **5 pairs of gill slits**
- **pair of nares**
- **ampullae of Lorenzini**
- **cloaca**
- **anus**

b. Dogfish Musculature

Dogfish Branchiomic Muscles

dorsal constrictor muscles

- **mandibular adductor**
- **spiracular**
- **second dorsal constrictor**
- **third to sixth dorsal constrictors**

ventral constrictor muscles

- **first ventral constrictor**
- **intermandibular**
- **second ventral constrictor**
- **third to sixth ventral constrictors**

levator muscles elevate

- **palatoquadrate levator**
- **hyoid levator**
- **third to sixth levators**
- **cucullaris**

Dogfish Hypobranchial Muscles

- **common coracoarcual**
- **coracomandibular**

Dogfish Axial Muscles

- **epaxial** muscle mass
- **hypaxial**
- **myomeres**
- **horizontal septum**
- **myosepta**
- **linea alba.**

Dogfish Appendicular Muscles

- **levator**
- **pectoral depressor**

II. The Mudpuppy, *Necturus maculosus*

a. External Anatomy

- **lateral gills**
- **two pairs of gill slits**
- **gular fold**
- **lateral line**
- **cloacacloacal gland in males**

b. *Necturus* Musculature

Necturus Branchiomic Muscles

- **temporalis (anterior mandibular levator)**
- **masseter (external mandibular levator)**
- **intermandibular**
- **branchiohyoid**
- **interhyoid**
- **branchial levators**
- **cucullaris (trapezius)**

Necturus Axial Muscles and Structures

- **rectus cervicis**
- **epaxial and hypaxial muscle masses**
- **horizontal septa**
- **dorsalis trunci**
- **linea alba**
- **rectus abdominis**
- **external obliques**
- **internal obliques**
- **transversus abdominis**

Necturus Appendicular Muscles

Muscles of the pectoral girdle

- **latissimus dorsi**
- **trapezius (cucullaris)**

- **dorsalis scapulae**
- **procoracohumeralis**
- **triceps brachii**
- **supracoracoid**
- **pectoralis**
- **humero-antebrachialis**
- **coracobrachialis**

Muscles of the pelvic girdle

- **iliotibialis**
- **iliofibularis**
- **puboischiotibialis**
- **pubotibialis**
- **ischioflexorius**
- **iliotibialis**
- **ilioextensorius**
- **iliofibularis**

III. The Rat, *Rattus rattus*

a. External Anatomy

- **philtrum**
- **nares**
- **pinna**
- **vibrissae**
- **anus**

b. Rat Musclature

Mammal Branchiomic Muscles

- **temporalis muscles**
- **masseter**
- **digastric**
- **platysma**
- **facial muscles**
- **trapezius**
- **sternomastoid**

Mammalian Axial Muscles

- **linea alba**
- **rectus abdominis,**
- **external obliques**
- **internal obliques**
- **transversus abdominis**

Mammalian Appendicular Muscles

Muscles of the pectoral girdle

- **latissimus dorsi**
- **spinodeltoid**
- **triceps brachii**
- **biceps brachii**
- **pectoralis major**
- **pectoralis minor**

Muscles of the pelvic girdle

- **sartorius**
- **gluteus maximus (superficialis)**
- **tensor fascia latae**
- **fascia lata**
- **caudofemoralis**
- **biceps femoralis**
- **biceps femoralis**
- **semitendinosus**
- **gracilis**