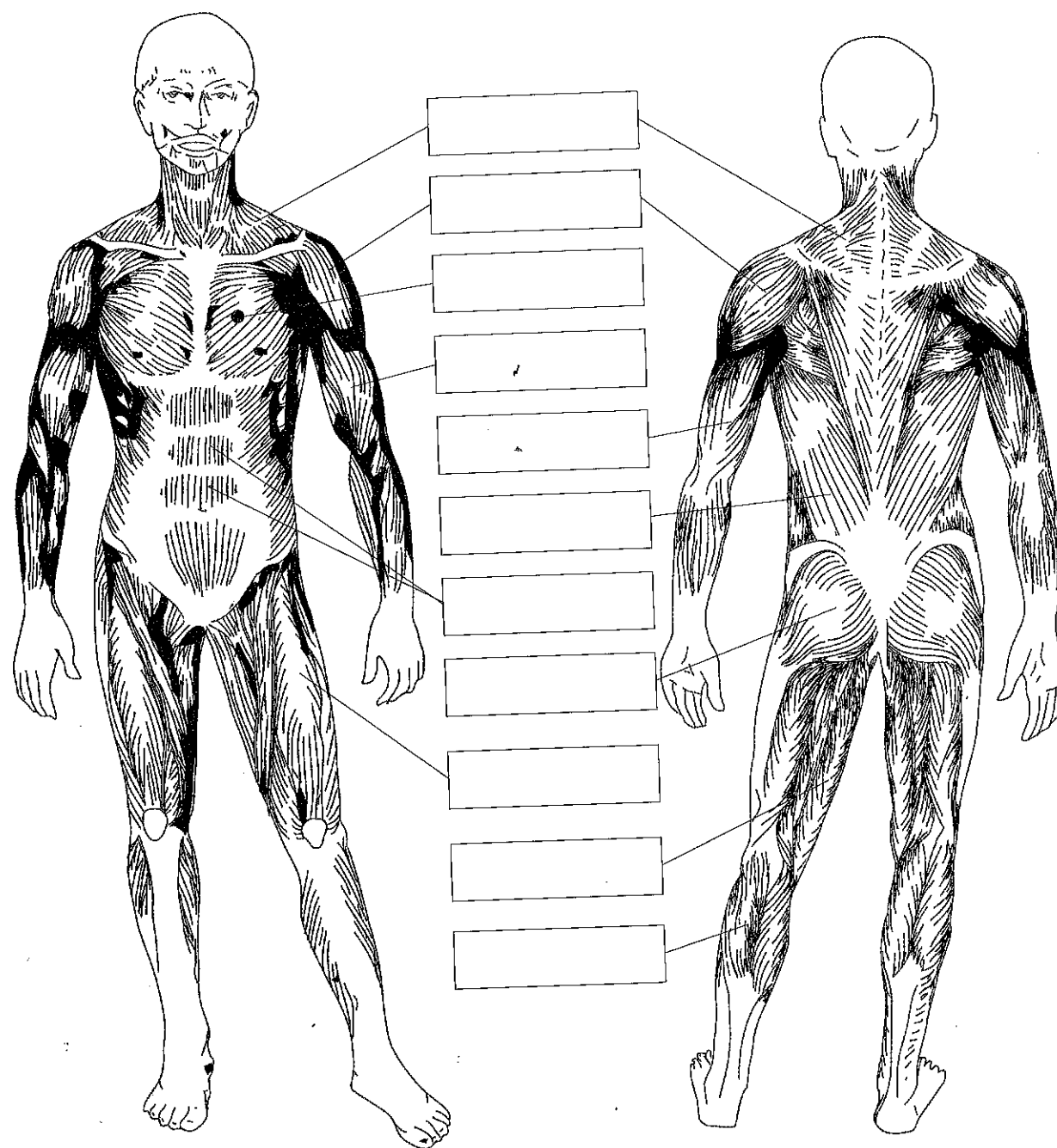


## 4.2 Identifying Muscles

By way of a pre-test, try to label as many muscles as possible indicated on the illustration below.



We will consider these muscles in greater detail on the following pages.

## 4.3 Guide to Individual Muscles

### [A] PRIME MOVERS OF THE TRUNK

#### 1. Rectus abdominus:

**Location:** A group of two muscles running lengthwise along the medial aspect of the abdomen. They are rather like two columns of muscle running up either side of the belly button.

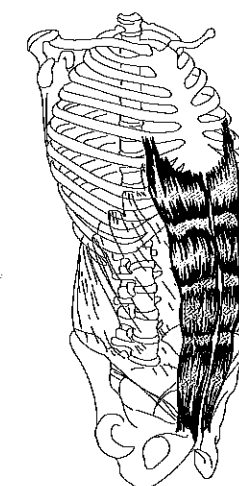
They run from the pubis (pelvis) to the cartilage of the 5th, 6th and 7th ribs. (see illustration).

**Movements:** Rectus abdominus allows two basic movements. These are:

1. \_\_\_\_\_
2. \_\_\_\_\_

**Application:** Typical sporting actions include:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



#### 2. Erector spinae group

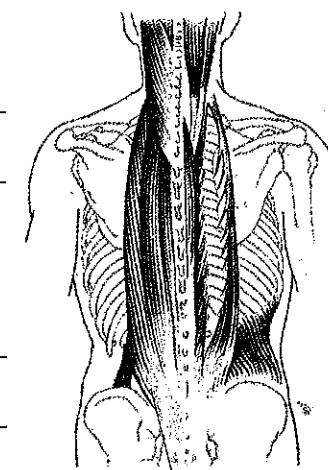
**Location:** One of the main muscles located in the lower back and one of the few visible. It runs from the pelvis to the lumbar vertebrae (see illustration).

**Movements:** Erector spinae group allows two basic movements. They are:

1. \_\_\_\_\_
2. \_\_\_\_\_

**Application:** Typical sporting actions include:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



Erector spinae

## [B] PRIME MOVERS OF THE SHOULDER

### 1. Trapezius

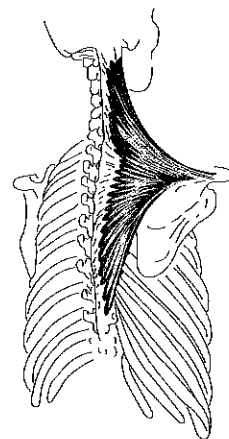
**Location:** A large triangular muscle located on the posterior aspect of the body. It runs in a triangular shape from the base of the skull, the 7th cervical vertebrae and all the thoracic vertebrae, to the scapula and clavicle (see illustration).

**Movements:** Trapezius allows four basic movements. These are:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

**Application:** Typical sporting actions include:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



### 2. Latissimus dorsi

**Location:** The broadest muscle of the back. It forms the back of the armpit.

This is a large triangular muscle which covers the lumbar and lower thoracic region of the back (see illustration).

It runs from the lower thoracic and lumbar regions, to the *anterior aspect* of the humerus.

**Movements:** Latissimus dorsi allows three basic movements to occur. These are:

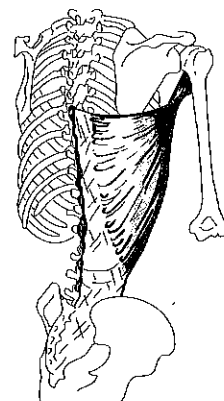
1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

How can latissimus dorsi allow *internal rotation* of the shoulder to occur if it is a muscle located on the *back*?

\_\_\_\_\_

**Application:** Typical sporting actions include:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



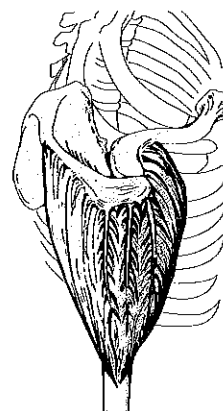
## Deltoid

**Location:** A triangular shaped muscle located on the superior aspect of the shoulder i.e. above the shoulder joint.

It runs from the scapula and clavicle to attach at the humerus.

**Movements:** Deltoid allows four basic movements. These are:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_



**Application:** Typical sporting actions include:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

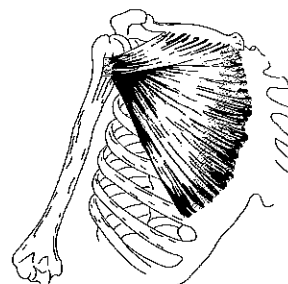
## Pectoralis major

**Location:** A large triangular muscle located on the chest.

It runs from the clavicle, sternum and the 6th rib, to the humerus.

**Movements:** Pectoralis major allows three basic movements. These are:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



**Application:** Typical sporting actions include:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

## [C] PRIME MOVERS OF THE ELBOW

### 1. Biceps brachii

**Location:** A two-headed muscle (*biceps*) located on the anterior aspect of the humerus. It runs from the scapula to the upper aspect of the radius.

**Movements:** Biceps allow two basic movements. These are:

1. \_\_\_\_\_

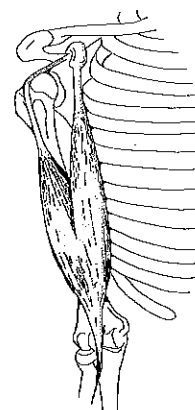
2. \_\_\_\_\_

**Application:** Typical sporting actions include:

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_



### 2. Triceps

**Location:** A large muscle located on the posterior aspect of the upper arm. It covers the whole of the back of the humerus. It runs from the scapula, over the posterior aspect of the humerus, to the upper part of the ulna.

**Movements:** Triceps allow two basic movements. These are:

1. \_\_\_\_\_

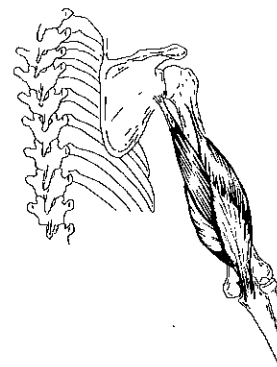
2. \_\_\_\_\_

**Application:** Typical sporting actions include:

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_



**[D] PRIME MOVERS OF THE WRIST****1. Flexor digitorum**

**Location:** This is one of the main gripping muscles of the anterior aspect of the forearm.

It runs mainly from the proximal aspect of the radius and ulna, over the anterior of the forearm, to attach to the fingers (see illustration).

**Movements:** Flexor digitorum allows two basic movements. These are:

1. \_\_\_\_\_
2. \_\_\_\_\_

**Application:** Typical sporting actions include:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**2. Extensor digitorum**

**Location:** This is one of the muscles in direct opposition to flexor digitorum. It is located on the posterior aspect of the forearm.

It runs over the posterior of the forearm, to attach to the fingers (see illustration).

**Movements:** Extensor digitorum allows two basic movements.

1. \_\_\_\_\_
2. \_\_\_\_\_

**Application:** Typical sporting actions include:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



**[E] PRIME MOVERS OF THE HIP AND KNEE****1. Ilio psoas**

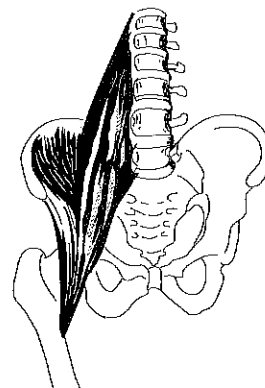
**Location:** This is a group of three muscles located deep inside the hip region. It runs from the lumbar vertebrae and pelvis to the upper femur (see illustration).

**Movements:** Ilio psoas allows one basic movement. This is:

\_\_\_\_\_

**Application:** Typical sporting actions include:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**2. Gluteus maximus**

**Location:** This is the large fleshy muscle that makes up your backside. You are probably sitting on it right now! It is an extremely powerful muscle. It is located on the posterior aspect of the hip running from the ilium (pelvis), sacrum and coccyx to the upper third of the femur (see illustration).

**Movements:** Gluteus maximus allows three basic movements. These are:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

**Application:** Typical sporting actions include:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



Gluteus maximus

### 3. Quadriceps

**Location:** This is a group of four (*quad*) muscles located on the anterior aspect of the thigh.

The four muscles making up the quadriceps group are:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_

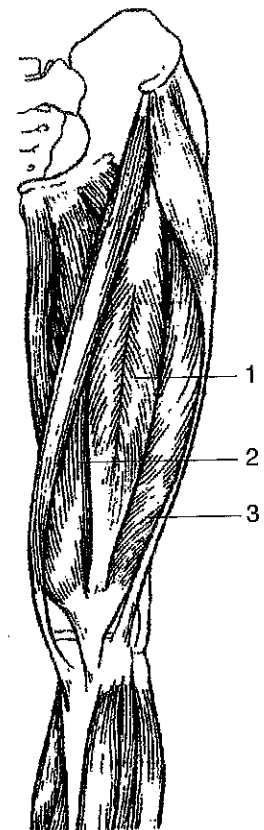
(see illustration)

**Movements:** Quadriceps allow two basic movements. These are:

1. \_\_\_\_\_
2. \_\_\_\_\_

**Application:** Typical sporting actions include:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



Note that Vastus intermedius is not shown in this illustration. This is because it lies under the other muscles and is not visible.



Consider the illustration to the left. Label the muscles of the quadriceps group you can identify.

#### 4. Hamstrings

**Location:** This is a group of three muscles located on the posterior aspect of the thigh. Since they are in direct opposition to the quadriceps and are generally weaker, they are prone to injury.

The three muscles making up the hamstrings group are:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_

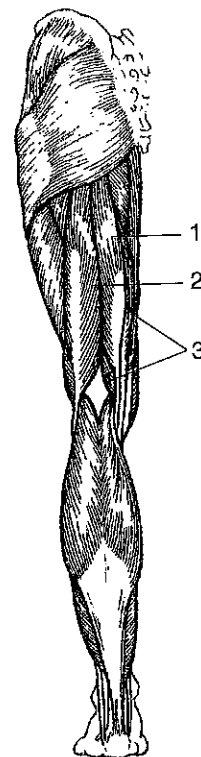
(see illustration)

**Movements:** Hamstrings allow two basic movements. These are:

1. \_\_\_\_\_
2. \_\_\_\_\_

**Application:** Typical sporting actions include:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_



#### [F] PRIME MOVERS OF THE ANKLE

##### 1. Gastrocnemius

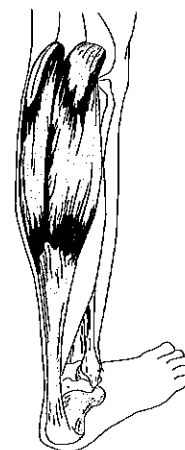
**Location:** This is the large fleshy muscle located on the posterior aspect of the lower leg. It runs from the distal aspect of the femur to the tarsals (heel) via the Achilles tendon (see illustration).

**Movements:** Gastrocnemius allows two basic movements. These are:

1. \_\_\_\_\_
2. \_\_\_\_\_

**Application:** Typical sporting actions include:

1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_





## 2. Soleus

**Location:** This muscle lies beneath gastrocnemius and serves largely the same function. It shares the Achilles tendon with gastrocnemius.

It runs from the proximal aspect of both the tibia and fibula to the same position as gastrocnemius on the heel (see illustration).

**Movements:** Soleus allows one basic movement. This is:

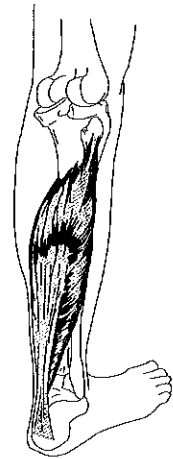
1. \_\_\_\_\_

**Application:** Typical sporting actions include:

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_



## 3. Tibialis anterior

**Location:** This muscle is located on the anterior aspect of the lower leg.

It lies mainly over the tibia and can be felt running along its sharp edge.

It runs from the proximal aspect of the tibia to the toes (see illustration).

**Movements:** Tibialis anterior allows two basic movements.

These are:

1. \_\_\_\_\_

2. \_\_\_\_\_

**Application:** Typical sporting actions include:

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_



## 4.4 Agonists and Antagonists

When muscles create movement, they tend to work in pairs.

When one muscle, (or group), contracts to generate the movement, the opposing muscle (or group) relaxes.

This is known as **Reciprocal Inhibition**.

Each muscle in the pair is labelled as either an **agonist**, or **antagonist**.

**Agonist:** \_\_\_\_\_

Agonists are also referred to as **prime movers**. Why?

**Anatagonist:** \_\_\_\_\_

Consider the example of a biceps curl.

The **movement** occurring at the elbow is \_\_\_\_\_

The **agonist** muscle would be \_\_\_\_\_

The **antagonist** muscle would be \_\_\_\_\_

The **prime mover** would be \_\_\_\_\_



When the person *extends* the arm i.e. to lower the weight:

The **agonist** muscle would be \_\_\_\_\_

The **antagonist** muscle would be \_\_\_\_\_

What other role does the antagonist muscle play in the lowering of the weight?

\_\_\_\_\_

\_\_\_\_\_