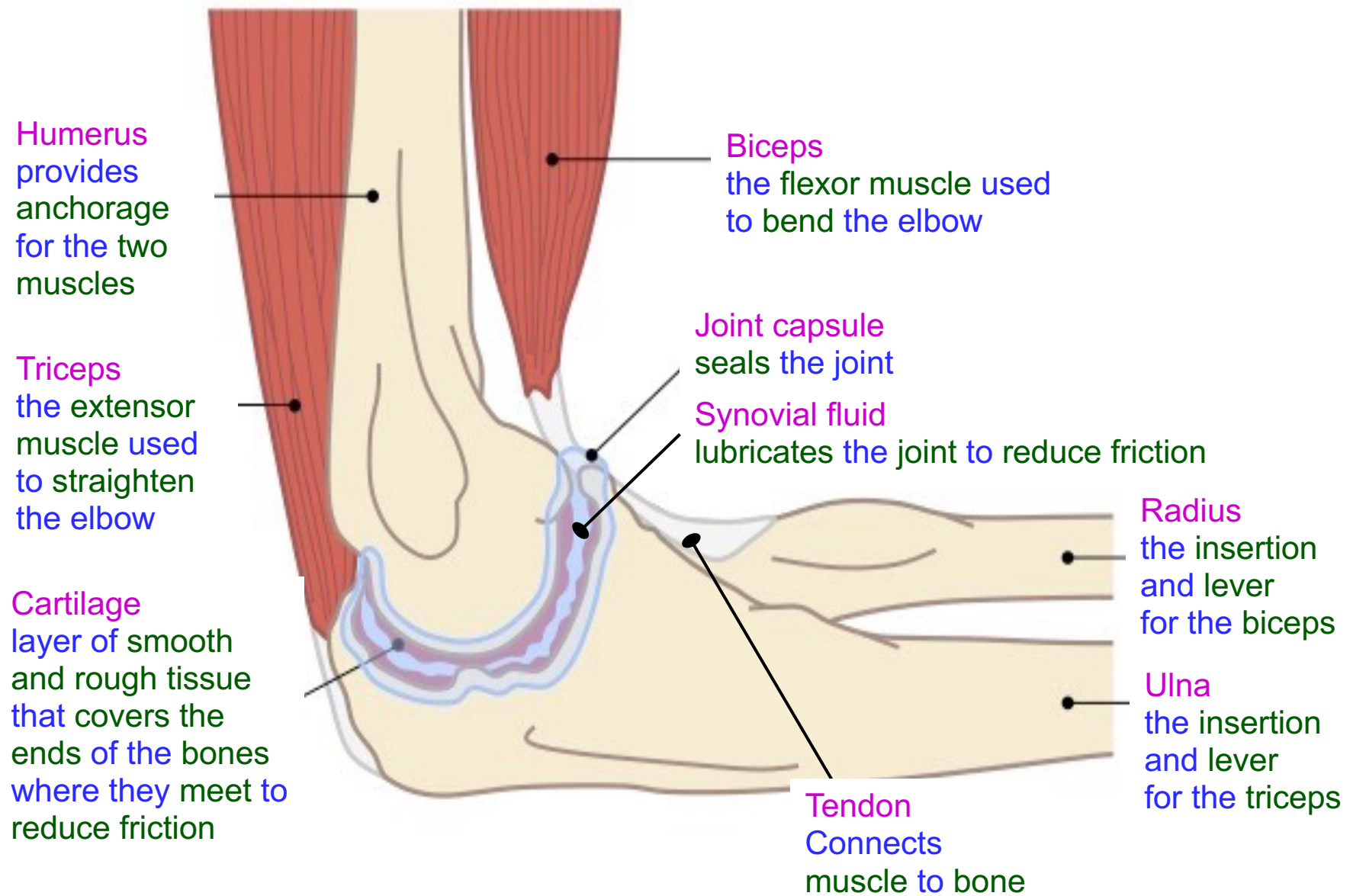


A. VOCABULARY

WORD	DESCRIPTION
ANTAGONISTIC	Muscle pairs work in opposite ways. When one contracts, the other relaxes.
ANCHORAGE	The bone that does not move, at the attachment end of the muscle.
INSERTION	The bone that does move, at the attachment end of the muscle.
JOINT	The place where two bones meet.
CARTILAGE	A layer of smooth and rough tissue that covers the ends of bones at a joint to reduce friction.
SYNOVIAL FLUID	Found between the cartilage-covered surfaces, this lubricates the joint to further reduce friction.
JOINT CAPSULE	This seals the joint and holds it in the synovial fluid.
LIGAMENTS	Tough cords of tissue that connect bones together on opposite sides of a joint. They restrict movement in certain directions.
FLEXOR	This is any muscle used to cause bending at a joint.
EXTENSOR	This is any muscle used to cause straightening at a joint.
TENDON	Attaches muscle to bone.
LEVER	Any bone that can change the size and direction of the force exerted by a muscle.
RADIUS	Bone that is the insertion for the biceps and acts as a lever to transmit force from the biceps through the forearm.
ULNA	Bone

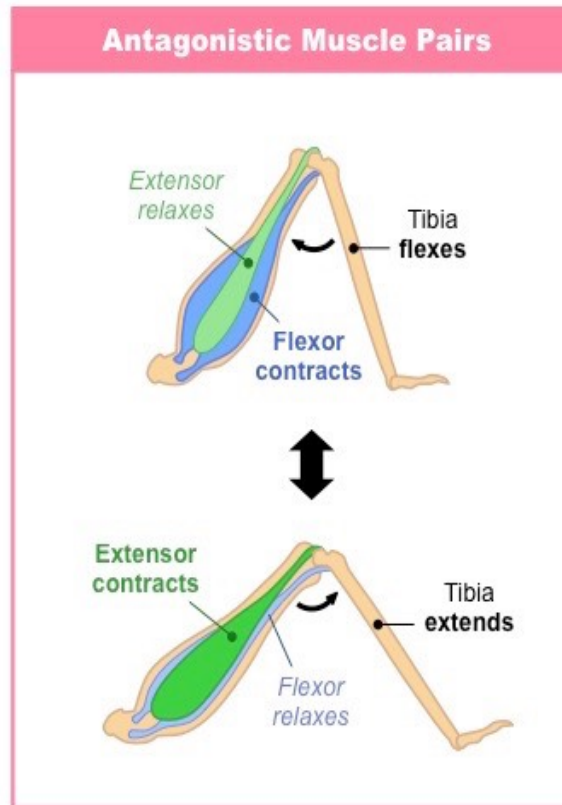
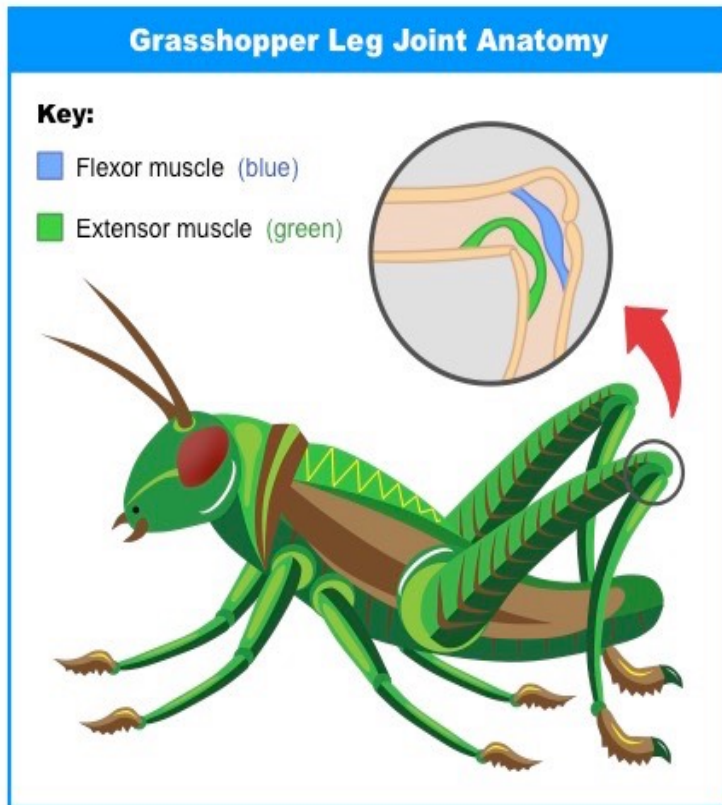
B. THE ELBOW JOINT



- **Bones** and **exoskeletons** provide **anchorage** for **muscles** and act as **levers**.
- **Synovial joints** only allow **movement** in **certain directions**.

C. HOW INSECTS MOVE THEIR LEGS

- The jointed exoskeleton of the **hind leg** is divided into **three** parts:
 - **femur** (upper leg)
 - **tibia** (middle leg)
 - **tarsus** (lower leg)
- The **femur** and **tibia** are connected by **two antagonistic muscles**:
 - **flexor** (tibiae) muscle
 - **extensor** (tibiae) muscle



Flexor muscle **contracts**
Extensor muscle **relaxes**

What happens:

- Tibia and femur are brought **closer together**
- This **retracts** the **hind quarters** in **preparation for pushing off the ground**

Flexor muscle **relaxes**
Extensor muscle **contracts**

What happens:

- Tibia is **pushed away from** the femur
- This **extends** the **hind quarters** and causes the insect to **jump**