

# THE EXTERNAL EYE

6 eye muscles move *each* eyeball.

The **medial rectus** (rectus = straight) is located closest to the nose. It moves the eyeball medially. It is innervated by cranial nerve III, the oculomotor (oculo = eye; motor = movement) nerve.

The **lateral rectus** is located closest to the ear. It moves the eyeball laterally. It is innervated by cranial nerve VI, the abducens nerve.

The **superior rectus** is located on top of the eyeball. It moves the eyeball superiorly. It is innervated by cranial nerve III, the oculomotor (oculo = eye; motor = movement) nerve.

The **inferior rectus** is located on the underside of the eyeball. It moves the eyeball inferiorly. It is innervated by cranial nerve III, the oculomotor (oculo = eye; motor = movement) nerve.

The **superior oblique** is attached at the top of the eyeball, but it runs sideways on the top of the eyeball, curls through a hole (the trochlea) in the skull on the medial side of the eyeball. So, when it contracts, it rolls the eye down and laterally. It is innervated by cranial nerve IV, the trochlear nerve.

The **inferior oblique** is attached at the bottom of the eyeball, but it runs sideways across the bottom of the eyeball, then attaches to the medial wall of the orbit. So when it contracts, it rolls the eye up and laterally. It is innervated by cranial nerve III.

## Lubricating the Eyeball

1. **Conjunctiva:** membrane covering the eyeball that secretes mucus.
2. **Lacrimal glands:** found above the eye
  - a. Lacrimal sacs drain tears to nose. This connection explains why our nose “runs” when we cry; and also why rhinoviruses (cold viruses) can infect our nasal passages when we rub our eyes after touching contaminated surfaces.
  - b. Tears contain salt and lysozyme. Both of these ingredients help prevent bacterial colonization. During stressful times, excess cortisol is shed in the tears, which is why crying can relieve pent-up stress and emotion.