

### Brain Injury Demonstration

**Time:** 15 minutes

### Materials

- Egg
- A clear jar or bottle with a tight fitting lid (just large enough to hold the egg)
- Water
- Paper towel
- Bowl

### Instructions

- Ask the students to name different examples of ways that a person might get a concussion
  - Some responses might include falling off a jungle gym, being hit while playing sports, being in a car accident, etc.
- Instruct the students that they will be doing a simulation that will show them how the brain becomes injured in a concussion
- Tell students that the jar represents the human skull
- Fill the jar or bottle about half way with water and tell the students that this represents cerebral fluid
- Gently put the egg into the jar and tell the students that the egg represents the human brain
- Close the lid tightly on the jar
- Explain that when a person is hit or experiences a fall or sudden movement such as whiplash in a car accident, his or her brain, which is surrounded by cerebral fluid, can move and actually hit the inside of the skull. Sometimes the brain not only hits one part of the skull (e.g. the front of the brain hitting the inside of the front of the skull), but also moves back and forth hitting both the front and back of the brain against the skull
- Holding the jar sideways, demonstrate this by shaking the jar vigorously to move the egg back and forth, hitting the inside of the lid and base of the jar
- Explain that this collision with the skull can cause a concussion

- Demonstrate this by opening the jar, pouring the water into the bowl and removing the egg to examine the damage done by the action
- Ask students to inspect the egg and discuss their observations
- Ask students what they think would be effective in preventing this type of injury and what would not be effective
  - Students might notice that a helmet would not protect the brain from colliding with the skull
    - Emphasize that wearing a helmet is still important because it protects the skull, which is critical to protecting the brain
  - Students might conclude that the best prevention would be to take safety precautions when engaging in activities
    - For example, using playground equipment properly; following road rules when walking, cycling, skateboarding, etc.
  - Students might also remark that changing rules in certain sports would be effective
    - For example, not permitting checking (hitting) or fighting in hockey.
- Ask the students what to recall what they should do after suffering a concussion
  - Students might say, for example, tell an adult about how they are feeling; give themselves appropriate time to heal by refraining from activities that may interfere with recovery or re-injure the brain.
  - Students might also mention that if someone they know has been injured and seems to be exhibiting symptoms of a concussion, they should tell someone.
- Show students the egg and ask them whether they think the egg is now stronger, more fragile, or the same as it was before the injury
  - The students will recognize that the egg is more fragile now than before (its shell is cracked or broken).
  - Emphasize that when the brain is injured, it is very important to take good care to let it heal because it can become injured again. Repeated injuries to the brain can cause serious damage over time that cannot be repaired.

## Variations

- Allow students to do this simulation themselves in pairs or small groups by providing each pairing or group with their own eggs and jars.
- Compliment this activity by creating a brain mold to demonstrate brain fragility. Use recipe created by [Parachute Canada](#)