

Eye safety

The eye is probably the most vulnerable portion of the body surface from an injury point of view. Eye injuries are much slower to heal and may not fully recover. Foreign bodies present the most common danger to the eye. Particles can lodge on the surface of the eye where they are generally irritating or sharp objects can penetrate deep into the eye where they can cause no pain. Certain types of particles can be extremely damaging.

In the laboratory, flying glass, possibly from an exploding test tube flask, as well as metal objects which may penetrate the eye can cause severe eye injury or result in loss of sight.

The eye reacts differently to different chemical agents. Caustic material (sodium hydroxide, etc) in the eye is much more hazardous than acid (sulfuric acid, etc) because the eye has no defense to the base as with the acid. The caustic material readily penetrates into the eye tissue.

Lab procedures that can produce liquid droplets or splashes include pouring, stirring, heating, and reacting of chemicals. Cleaning of glassware and breaking of containers can also cause chemicals to reach the eyes.

Splash resistant safety goggles are the only protective device adequate for general eye protection in the school lab (we will discuss this further). Goggles can be worn over most prescription lenses. Prescription lenses should not be regarded as safety glasses!

Many splashes and particles approach the eye from an angle or from underneath: so would not be stopped by corrective lenses even if the glass is strong enough. It is estimated that a third of all eye accidents are caused by another person or source.

It has been argued that contact lenses offer protection from damage by particles and chemicals. Nothing could be more erroneous! An eye that has received a chemical splash should be washed thoroughly with water until the material has been completely washed out. This usually takes 15 minutes. If a contact lens is in the affected eye, the chemical may be drawn under the lens by capillary action where it cannot be reached by water washing. Contact lenses should be discouraged or prohibited in the school lab. Students should wear glasses which are covered with goggles.

If all protective measures fail and a student or teacher gets a corrosive chemical in the eye, an eyewash device should be available for immediate and thorough washing of the eye. At least one eyewash device should be in every science classroom where chemicals are used. When required, the eyewash should be used as quickly as possible.

Answer the following questions on “eye safety” in the space provided

1. Disregarding temporary or permanent impairment of your vision, why is injury to eye tissue more serious than it is to other types of tissue?

2. List three sources of potential hazard to your eyes when working in the lab?

3. Which is more dangerous to eye tissue, concentrated acid or a caustic material?

4. How do contact lenses increase the risk of eye tissue damage once hazardous liquid has been splashed into the eye?

5. If all protective measures fail and student or teacher gets a corrosive chemical in the eye, what should be done?

6. How quickly should you get to an eyewash station if a caustic material gets into your eyes?
