

Play it Safe: Go for the Gear

from **Celebrating Chemistry**



When you're playing sports, the last thing you want to think about is getting hurt. Luckily, chemists have thought about it for you.

Developments by chemists and other scientists have helped sports become safer than when your parents were children. Today's safety gear is lighter, sturdier and—best of all—it protects you better.

Helmets—Layer of Protection

Helmets are the kind of safety gear that people often think of first. Back in the early 1900s, football and baseball players wore helmets made from leather. It offered little protection, and players were likely to suffer from a head injury. The same was true in bicycling. Then in the mid-1980s, bicycle racers started wearing helmets made of polymers. They were designed to protect and cushion their heads if they fell. As a result, fewer head injuries have occurred.

The bicycle helmet you wear today is based on those first helmets. Not only does it protect your head from injury, it is much lighter and cooler to wear. That's because chemists, engineers, and other scientists are inventing new materials and ways to put them together to protect you better.

Safer with Polymers

Most kinds of sports gear today are made of polymers. Polymers can be hard, like the plastic shell of a helmet, or soft, like the foam inside of a volleyball knee pad. Each polymer is carefully designed to act a certain way. A stretchy polymer called spandex helps your soccer shin guards cling to your legs even while you run. The palms of skate gloves may be a tough nylon polymer that shields hands from scrape. Basketball players may wear polycarbonate eye shields to protect their eyes from balls, elbows, and other kinds of hits.

Even the materials four your athletic shoes are designed to keep you from being injured. For example, the soles of most sports shoes are made from rubber, a type of polymer. It helps you grip to a surface such as a cement sidewalk or your gym's floor to prevent you from slipping and hurting yourself. Another example may be found in your neighborhood park or school playground—rubber mats. Most are made from recycled tires and, most importantly, they provide good padding in case you fall.

Before your next outing, look at your safety gear and equipment used in the sports you play. How does each piece help protect you?

