
Consumer Decision Making Contest 1999-2000 Study Guide

BIKE HELMETS

More than 1000 deaths each year are related to bicycling. School age students make up half of those killed. Wearing a bike helmet has been shown to reduce the risk of head injury during a bicycling crash up to 85 percent.

A bike helmet is designed to absorb shock and cushion the wearer's head. Wearing a helmet is becoming increasingly popular because cyclists are more aware of the protection a helmet offers and because helmets are becoming lighter, more attractive, more comfortable, and more effective than earlier models.

Helmet Design

Bike helmets come in hard-shell, no-shell, or thin-shell. Each of the types is made using expanded foam which cushions a blow to the head. Headgear which does not include padding is not a helmet and does not protect the wearer's head during a crash.

Hard-shell helmets are heaviest and can weigh more than a pound. The hard, smooth shell protects against sharp objects and helps resist everyday wear and tear on the helmet. Some tests show that the hard shell does not cushion against impact as well as a thin shell or no shell.

No-shell helmets are typically the lightest weight and can weigh only one-half pound. No-shell helmets absorb impact better than other types, but can fall apart when hit if not held together by a durable covering.

Thin-shell helmets offer a middle ground between hard-shell and no-shell types. Thin-shell helmets have been shown to resist

impact and offer moderate protection from sharp objects.

Bicycle helmets are designed to reduce the chances of head injury to the wearer, but no helmet can guarantee protection against all injuries. A good helmet cannot replace overall caution, correct riding procedures, and adherence to traffic regulations. Some riding situations may require protective eyewear in addition to a helmet.

Strap design and safety

The straps and buckle assembly on a helmet are often called the "retention system." Two aspects of the retention system need consideration.

- \$ Strap design--how easily the strap and buckle operate when taking the helmet on and off

\$ Strap safety--how well the strap stays buckled and holds the helmet in place when involved in a crash

A helmet should be able to be buckled and unbuckled easily. Straps should adjust to head size of the wearer. Since usually only one person will wear a particular helmet, adjustment does not need to be as easy as buckling and unbuckling.

A helmet with more than one strap will usually fit better and be more easily adjusted than one with a single strap. Once the strap is buckled, it should not come apart until intended.

Fit

Helmets fit snugly when in place. A helmet which fits properly will touch the wearer's head at the top, sides, front and back. Many helmets come with headbands or sizing pads to make the helmet fit different head shapes.

Check to see that pads already in place do not obstruct air flow of the helmet. Pads provided for the wearer to install should be attached so they do not block airflow or hinder effectiveness of the helmet.

A properly adjusted helmet will not move side to side or back to front when your head moves or shakes. When the helmet is in place, it should not be able to be tipped forward or backward. In no instance should the helmet be able to be removed without releasing the retention system.

The front of the helmet should be worn even with the back. A helmet worn too low in front may obstruct vision while a helmet

worn too high in front will not protect adequately.

The objective is to have the helmet snug, level, and stable.

Safety Tests and Instructions

The Consumer Product Safety Commission (CPSC) has established a bicycle helmet standard law which goes into effect on March 10, 1999. Any bicycle helmet manufactured for sale in the U.S. after that date must meet the CPSC standard, or the manufacturer can be fined or even go to jail. The standard establishes safety requirements and minimum performance criteria for all bike helmets. Standards are defined for impact, peripheral vision, positional stability (making sure the helmet doesn't come off in a crash), and the strength of the retention system (straps) don't stretch or break in a crash.

In the meantime, however, any helmet meeting at least the American Society for Testing and Materials (ASTM) standard, as well as the American National Standards Institute (ANSI) bicycle helmet standard is still legal for sale. After March 10, 1999, you will still see helmets on the market that don't meet the CPSC standard, but without any reference to being a helmet for bicycling. They can be for skating, skateboarding, surfing or tiddlywinks, as long as they are not labeled for bicycling. They can even be sold in bike shops or in discount stores on the same shelf as the bicycle helmets. However, multi-purpose helmets marketed without specific reference to activities the helmet is to be used for must meet the CPSC standard.

The bicycle helmet safety institute recommends that you look for the CPSC standard, and if it is not there, look for an ASTM standard instead. Snell's B-95 sticker is an even better indicator of quality, but most of the ASnell® helmets on the market meet only the older B-90 standard, comparable to the CPSC standard. Snell's N-94 multipurpose standard is even better, but only two manufacturers have models certified to it at present. In September of 1998, the Safety Equipment Institute (SEI) announced that they are now certifying helmets to the CPSC standard.

In order to be most useful, helmets should have detailed instructions for fit and wear. Instructions should tell how to adjust pads and straps, how the helmet should feel if it fits right, and how to take care of the helmet.

Any helmet involved in an crash should be replaced. Even if the helmet looks all right, it may have been damaged and not provide protection when it is needed.

Comfort

Most bike helmets have holes that allow air through to cool the wearer's head. Some have pads to absorb sweat from the forehead. Pads may block the airflow and actually make the helmet hotter. A helmet without any air holes will probably be too hot to be comfortable.

Heavy helmets are uncomfortable. A helmet should be light enough to be comfortable, but strong enough to offer protection during an crash. Helmets are most comfortable if they weigh under one pound.

Helmet Care

Correct helmet care will help keep your helmet in shape to protect you.

- \$ High temperatures (over 150°F) will damage bike helmets. Temperatures in closed cars or storage containers often exceed acceptable temperatures.
- \$ Solvents, strong cleaners, or alcohol can damage a helmet. Only water and mild soap should be used on any part of the helmet, straps, or pads.
- \$ Decals or paint may also reduce the effectiveness of the helmet.
- \$ Any helmet involved in an crash should be replaced. Even if the helmet looks all right, it may have been damaged and not protect your head.
- \$ Damage to a helmet may not be visible.
- \$ Destroy any helmet suspected of damage or return it to the manufacturer.

Warranty and Registration

Helmets may come with an owner registration card and warranty. Filing an owner registration card provides some nice bonuses.

- \$ You may receive mailings with bike news.

- \$ If a recall or notice of defect is issued, registered owners will be notified.
- \$ Registration provides a basis for any claims regarding the helmet.

Warranties vary according to manufacturer and helmet model. Most warranties protect against defects. Some manufacturers will replace a damaged helmet at no charge.

To learn more about this topic, check to see if your county has the ~~A~~Super Cyclist Bicycle Curriculum developed by Texas Department of Public Safety. If not, contact your Department of Public Safety, Safety Education Trooper.

Reference:

<http://www.bhsi.org/webdocs/fit.htm>
"Bike Helmets: Unused Lifesavers."
Consumer Reports. Vol. 55, No. 5, May 1990, p. 348.

Prepared by Rhonda Brinkmann, Extension Assistant, Consumer and Family Sciences, Texas Agricultural Extension Service, August 1991.

Edited and updated by Janie Harris, Extension Specialist, Passenger Safety, Family Development and Resource Management, Texas Agricultural Extension Service, October 1998.