



Helmet Program Toolkit

October 6, 2020

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Helmets.org

The Bicycle Helmet Safety Institute

A consumer-funded program

4611 Seventh Street South, Arlington, VA 22204-1419

703-486-0100

www.helmets.org

info@helmets.org

October, 2020

Helmet Program Resources

Dear Educator or Program Planner:

In response to your request, here is information on helmets and helmet promotion campaigns. We include program guides, statistics and other useful information, a CD with manuals, lesson plans and a rodeo guide, and pamphlet masters to photocopy for any non-profit use. The CD has our entire Web site on it, including this Toolkit as the Word file Toolkit.doc, and our pamphlets in Word and .pdf format if you want to print out copies. It also has the WABA Safety Site with info on doing school riding demos.

In addition to our materials we hope the addresses below are useful. Google searches will find most of them on the Internet.

US Department of Transportation

DOT's National Highway Traffic Safety Administration has **free** pamphlets, handbooks, posters and other materials for bicycle safety campaigns. A page is included in this toolkit with descriptions of some of them. Some are available on the Web. Contact Safety Counter-measures Div., NHTSA, Dept. of Transportation, 4700 7th St. SW, Washington, DC 20590-0001. Phone 202-366-5399, Fax 202-493-2062. All of them are on our enclosed Toolkit CD or the NHTSA video CD. Web: nhtsa.gov

Snell Foundation - Snell Safety Education Center

The Snell Safety Education Center has pamphlets, buttons, posters, videos and other helmet promotion materials for a small donation. Some of their materials are available in Spanish. Contact them at 3628 Madison Ave., STE 11, North Highlands, CA 95660, Phone 916-331-5073, email info@smf.org, Web: www.smf.org Ask about what donation they expect for the materials you are requesting.

Safe Kids Worldwide Campaign

If you target kids you should contact the Safe Kids Worldwide Campaign coalition in your area. They have promotional materials. They also have low cost helmets used by their own programs, and your program can order Bell brand helmets through the same source by calling 800-494-4543, ext. 260. For the national headquarters, contact Safe Kids, 1301 Pennsylvania Ave NW, Suite 1000, Washington, D.C. 20004-1707. Phone 202-662-0600, fax 202-393-2072, email: info@safekids.org, Web: www.safekids.org

American Academy of Pediatrics

AAP's Physicians Resource Guide motivates pediatricians to recommend helmets to parents. Write to AAP, Dept. of Publications, P. O. Box 927, Elk Grove Village, IL 60009. Web: aap.org

American Automobile Association

The AAA Foundation for Traffic Safety has pamphlets, films, booklets, and videos covering a wide range of bicycle safety subjects, including helmets. They provide some videos and 250 copies of their printed materials **free**. AAA Foundation for Traffic Safety, 1440 New York Ave NW, STE 201, Washington, D.C. 20005. Phone 202-638-5944 Web: aaafoundation.org

State Programs

North Carolina has an active program. Residents should call 919-733-2804. Florida has a very active program at 850-245-1500. New Hampshire's Dartmouth Center has a program for NH residents at 603-646-7780. Virginia has a Resource Guide available for residents from Heather Sitterding at 804-371-2434. California has lesson plans and other resources. The Texas Bicycle Coalition has materials in both English and Spanish. Google searches will find most of those on the Web, including your state if not one of the above.

Consumer Reports Article

Consumer Reports has a 2018 bicycle helmet report on the web site. They give Excellent impact protection ratings to 24 models, with most of the remaining ones scoring Very Good. The highest overall scores are for the Scott Arx Plus, Bell Muni, Bell Draft, Bell Draft MIPS, Bell Stratus MIPS, Cannondale Teramo, Giro Revel MIPS, Girao Foray, Lazer Cyclone and Giro Revel. The Bell Draft scored higher than its MIPS twin due to better ventilation. Lowest scores from the bottom up: Wipeout Dry Erase, Raskullz Mohawk, Bell Disney Frozen Tiara, Razor V17, Bell Block and Giro Scamp MIPS. The full report including impact ratings, ventilation ratings and more is on the ConsumerReports.org web site behind a paywall.

Virginia Tech Ratings

Virginia Tech University has developed a methodology for testing helmets for their ability to reduce concussions. We have some reservations about their testing, but strongly support the concept of trying to rank helmets for low-level impact performance. We have a web page on their program and another listing helmet models where their ratings and Consumer Reports ratings concur:
<https://helmets.org/bikehelmetratings.htm>

Want to help?

We send this Toolkit free and we want you to know that there is no implied obligation to contribute a cent! We keep the total cost down to about \$6 so we can do that. But we are all volunteers, we do not accept any funding from the helmet industry, and we are on a very small budget. So if you want to support our work and you do not make or sell helmets, you are welcome to send us a tax-deductible donation. Please make checks out to "Bicycle Helmet Safety Institute." Whether or not you can donate anything, we are glad you requested these materials and hope they will be useful.

Sincerely yours,

Randy Swart

Randy Swart
Director



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Helmet Fact Sheet

Source: National Highway Traffic Safety Administration (NHTSA) and others

- 857 bicyclists died on US roads in 2018, an increase of 6.3 per cent (855 in 1990. 1,003 back in 1975)
- Average age of a bicyclist killed on US roads was 47 (36 in 2002)
- Bicyclist deaths represented 2 per cent of all 2018 traffic fatalities a steady percentage.
- 53 Bicyclists 14 and under were killed in 2017.
- Average age of a bicyclist killed on US roads was 47 (36 in 2002)
- Males were 87% of those killed.
- 75% of fatal crashes were urban.
- 81.5% of the cyclists were hit by the front of the vehicle.
- 63% were on roadways not at intersections. 27% were at intersections. 10% were in other locations.
- Fatalities were in daylight 48%, dark 47%, dusk 3%, dawn 2%.
- Fatalities most often occurred between 6 p.m. and 9 p.m. regardless of season.
- 27% of the cyclists killed in 2017 had been drinking. (Blood alcohol over .01 g/dl) 37% of the crashes involved either driver or cyclist drinking.

The NHTSA data is broken down by state on their Web site.

Other data:

- The "typical" bicyclist killed on our roads is a sober male over 16 not wearing a helmet riding on a major road between intersections in an urban area on a summer evening when hit by a car.
- Direct costs of cyclists' injuries due to not using helmets are estimated at \$81 million each year, rising with the increase in health care costs.
- Indirect costs of cyclists' injuries due to not using helmets are estimated at \$2.3 billion each year.
- Helmet use in the US varies greatly in different areas and different sectors of our society. White collar commuters probably reach 80 per cent, while inner city kids and rural kids would be 10 per cent or less. Overall, our best guess is probably no more than 25 per cent.



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Where Do I Find Funding?

That's a good question!

First off, we are a small nonprofit, all volunteers, with an annual budget of about \$12,000. It is fully committed, and we don't do grants because there just isn't any funding. We think there is a need for small grants for local helmet promotion programs but we don't have the resources to do it.

Most of the grant programs we have heard about are either part of a large national campaign like the one run by the Safe Kids Worldwide Campaign for their local chapters, or are funded locally by the Elks, Kiwanis, JayCees, Chamber of Commerce, a local merchant, a bike club or another local organization.

That means that local service organizations are probably the best place to start looking for funding. On occasion Federal grants have been made available to supply helmets through state health departments. You may be able to approach your own state health department and ask.

If you are intending to distribute free helmets, check our page on the availability of cheap helmets for campaigns. The low cost (starting at about \$5 each) reduces the need to raise money. And helmets are available at some merchants at low prices, with Wal-Mart and Target starting at an everyday price of \$10 to \$12.

We wish we could be more encouraging. If we find a source of funding for local campaigns we will post it here. If you find one, please email us!

Here is a message from one who did:

I just did a helmet give away in San Diego County. The local Chamber of Commerce was my major funder. Also local merchants gave individually from their businesses. I was able to raise \$850.00 with one presentation. As we finished our event, a representative from an automobile dealership came by and offered to support our next effort. Sometimes one success leads to another. Good Luck



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Inexpensive Helmets

You can find helmets for your program at a local discount store (Wal-Mart or Target start at \$10) Some bike shops will discount for a campaign. Helmets must meet the CPSC standard by law, assuring impact performance even in cheap models.

The Safe Kids Worldwide Campaign has arranged with one of their sponsors, Bell Sports, to provide helmets to their local chapters and other non-profits at around \$7.50 each. Contact your local Safe Kids chapter or their national office at 202-662-0600. Or call Kathy Hoffmann at Bell Sports at 800-494-4543 ext. 260 (email: khoffmann@bellsports.com) The mailing address is Bell Sports, Inc., 1924 County Rd, 3000 N, Rantoul, IL 61866.

American Safety ASHP has helmets for prices ranging from under \$6 to \$35 for BMX models, plus freight of \$1.25 to \$3 per helmet. Some models are Snell B-95 certified. They have a true dual-certified skate-style helmet that meets both the CPSC bicycle helmet standard and ASTM F-1492 skateboard standard for only \$11. We would avoid their Swift 20 model with the pronounced rear overhang that adds nothing to safety and provides a potential snag point in a fall. ASHP has a 40 helmet minimum and a \$25 surcharge for orders under \$500.

HeadStart Technologies has a line of Canadian-made EPP helmets selling for \$7 to non-profits. EPP is a multi-impact foam, so you don't have to trash the helmet after every impact. They say the models for the U.S. are all ASTM certified. They also have toddler helmets made for either U.S. or Canadian (CSA standard) specs. The Canadian standard differs considerably from the US standard for toddler helmets, and is probably better. Contact Headstart Technologies, 558 Massey Road, Unit 6, Guelph, ONT N1K-1B4, Canada. tel. 800-423-3409 or 519-836-6646.

Helmets R Us has a line of TopGear helmets starting at about \$20.00. They also sell retail to individuals. They have sizing info for retail sales and a How to Fit video for programs that costs \$15.

J & B Importers has a line of helmets at about \$7 to \$15. They are certified to the CPSC standard. Contact Lisa Humphries, Sales Manager, by email at lcahn@jbimporters.com or by voice phone at 800-666-0400 x255. J & B is a well-known wholesaler to the bicycle industry of all kinds of bicycle parts and accessories. They established this program to deal with non-profits.

Prevention Alternatives Inc. has helmets from Vigor Sports at \$6 for 12-vent helmets with black foam and \$8.50 for skate-style models, plus shipping if ordering less than 100 units. Discounts available on large orders. Prevention Alternatives, Inc., PO Box 16, Haslett MI 48840, 517-927-7731.

ProRider (Children-N-Safety or CNS) has "economy" bike helmets starting at \$3.65 each. They have other models in the five to six dollar range, some certified to Snell B-95, a slightly more demanding standard than CPSC. Their skate-style helmets are certified only to the CPSC bicycle helmet standard, as are most skate-style helmets in this price range. Their BMX (motorcycle-style) helmets are certified only to the CPSC bike helmet standard, and are priced at about \$45 to \$50. Contact ProRider, 18370 Olympic Avenue South, Tukwila, WA 98188, tel. 800-642-3123, fax 425-251-5985, email info@prorider.com.

Note: We do not accept support from these companies or any other manufacturer. We have had no business relationship with any of them, so we can not actually recommend any of them. We recommend normal business caution in dealing with any commercial enterprise, including helmet suppliers.

Free Helmets

The Brain Injury Law Center gives away helmets to individuals 19 years old or younger, but no helmets for programs. We have no feedback yet. Their toll-free telephone number is 877-840-3431

Some major US helmet manufacturers have *on rare occasion* donated helmets to a local campaign. The request has to hit just right, when they have leftover helmets of a particular model, or it somehow fits with their current marketing strategy.

We don't have any more info than that, but you can check out Web site for contact info.



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Some Videos and Films

Videos included in our Toolkit:

Bike Helmets 101: A Basic Users Guide to Brain Safety The only helmet safety video we have ever seen that is fun to watch. It features fast cuttings, quirky humor and good information in three minutes. Suitable for a wide age range.

Ride Smart. The best free video we have seen for 8 to 12 year olds. Kids do the preaching. Damaged helmets, egg drop, jello smash, fitting, brief rules of the road. 9 minutes. **Free** from DOT and on the DOT video disk with this Toolkit.

Bike Safe, Bike Smart. Safe riding video, all kids, diverse cast, wear helmet, fit, extensive rules of the road and riding techniques including night riding tips. Reviews rules at the end. Included on the DOT video disk with this Toolkit. 8 min.

Bicycle Safety. Hosted by Celine Yeager, filmed in DC cherry blossoms. Covers bike types, helmet and fit, lights, bright clothing, bike check, rules of the road, regulations, hazards. Included on the DOT video disk with this Toolkit. 7 min.

Fitting a Bike Helmet. Crash scene, bad advice on old standards, but step by step instructions on fit. Included on the DOT video disk in this Toolkit. The Spanish version is on another of the DVDs.

Jello in a Jar From Safe Kids. Still one of the best for tweens, and we send it with our other videos.

Professor Helmut on Helmets. Man in a white lab coat covers helmet testing, why you need one and fitting. He does a fun melon drop on a concrete floor. Six minutes.

Adjuste del Casco de Bicicleta. Spanish language video—why wear a helmet and how to fit one. On our DOT disk.

Others

I Will Wear It and Live

We have not seen it, but designed for 8 to 12 years. Scenes from the rehabilitation of an 11-year-old girl struck by a car while riding her bike without a helmet. Individual children and tweens make a personal pledge to wear a helmet every time they ride. 5 minutes. Comes with a leader's discussion guide. \$20 inc. shipping. 616-242-0360 or send a check payable to "Mary Free Bed Rehabilitation Hospital" to Linda Schillinger, Mary Free Bed Rehabilitation Hospital, 235 Wealthy SE, Grand Rapids, MI 49503.

How to fit A Bicycle Helmet Best helmet fitting video for training a parent to fit a child's helmet or for training helmet fitters for a program. An adult shows how to fit children. 7 mins. \$15, checks payable to "Pierce County Safe Kids Coalition." Pierce County Safe Kids Coalition, Jenny Sharp, Coordinator. West Pierce Fire & Rescue, 3631 Drexler Drive W, University Place, WA 98467, phone (253) 983-4574 cell (253) 226-9356 jenny.sharp@westpierce.org

The Perfect Fit Fine helmet fit video. Racers fit helmets on kids, with mountain bike scenes. Text whizzes by, but advice is sound. 6 min. Teletech Video, 33816 Robles Dr, # 8, Dana Point, CA 92629, 949-388-7780 lyadao@home.com www.teletechvideo.com

Get moving. Stay safe. Wear a helmet From the Texas Medical Association: "Proper helmet fit, the key to safe cycling, is stressed in this five-minute DVD." Physician demonstrates the correct way to wear a bike helmet, including strap adjustment \$11.80 with shipping.

Geared Up!: The Essentials of Adult Bicycling Covers: accountability, avoiding crashes, bike fit, equipment including helmets, helmet fit, riding in traffic, trail riding, night riding and more. Can display optional Spanish subtitles. A well-done 20 minute video produced in 2008. Riders are all fit enthusiasts, mostly in lycra. From the A'Hearn Group, at www.adultbicycling.com for \$25 including shipping.

Bike Safety with Bill Nye the Science Guy. Great video, but expensive. Covers each safety rule briefly, repeating the helmet message throughout. Has kids, cops, a messenger, racers, a melon drop. 16 min. Teacher's Guide. Disney Educational Productions, 105 Terry Drive, STE 120, Newtown, PA 18940-1425 or call 800-295-5010. \$84.

Bike Helmet – Perfect Fit Great 6 minute "how to fit a helmet" video. Racers instruct kids on how to fit helmets. Center for Injury Prevention, 5009 Coye Dr, Stevens Point, WI 54481-5078. 800-344-7580 or 715-344-7583 \$10.

Snell: Kidz Vidz (5 min). Explains Snell's testing to kids up to age 10. Snell Foundation, 3628 Madison Ave, Ste 11, N. Highlands, CA 95660. 916-331-0359. Email: info@smf.org. Web: www.smf.org



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Public Service Announcements

Some of these are from Valodi Foster, California Dept. of Health Services

15-Second Spot

It's a fact. About 850 people, including more than 200 children, are killed annually in bicycle-related crashes nationwide, and about 60 percent of these deaths involve a head injury. The good news: (pause) research indicates that a helmet can reduce the risk of serious brain injury by 66 to 88 percent. Use your head. Use a helmet.

15-20 Second Spot

So you've heard that 60 percent of all bicycle deaths involve a head injury, and now you want to buy a helmet. The problem is, you don't know what kind of helmet to buy or where to buy it. But all helmets sold in the US are required by law to meet an impact performance standard set by the U.S. Consumer Product Safety Commission. So you can buy a helmet that fits you, and buy it in a bike store, department store or discount store--they are all safe. If you buy online, watch out for counterfeits. Now you know. So what are you waiting for? Get your helmet today!

20 second spot

Here's a safety question for you: why do Tour de France riders wear helmets? Probably because the race organizers require it, but also because they value their brain. If you value your brain you should wear a bike helmet too, even if nobody requires you to. You don't have to be riding in the Tour -- a simple fall can leave you in a vegetative state. It's your brain, and the choice is yours. Wear that helmet every time you ride.

20-Second Spot

Have you ever wondered if you need a helmet when you ride your bike or skate? Well, studies show that if you use a seatbelt in your car, have a smoke detector in your home and look both ways before crossing a street, you certainly would wear a helmet. But if you cut your grass barefoot, swim and play golf in thunderstorms and pinch the grounding pin off of three prong plugs, you might not want to bother. Personal safety is all about your own head, and how much you value it. If you have something to protect, wear a bike helmet when you ride.

15-20 Second Spot

You've bought the helmet for your kids, and now it's time to enjoy the beautiful weather and ride those bikes! But your child won't wear the helmet. So ride with your kids and wear your helmet too! Kids tend to model what their parents do. So if you want your children to practice good bicycle safety, make sure you practice what you teach!

10-Second Spot

So your teen won't wear a bike helmet? Remind them that wearing a helmet correctly every time is responsible behavior...the same kind needed to drive the family car at 16.

10-Second Spot

So your child won't wear a bicycle helmet? Remind them that wearing a helmet correctly every time is responsible behavior...the same kind needed to earn that new privilege they have been asking for.

A Longer Dialogue: "Just in Case"

Mark: Hey Jen, let's ride our bikes and go get some baseball cards.

Jen: Okay, let me go home to get my bike.

Mark: You don't have to go all the way home, just use my brother's bike. He won't mind.

Jen: Even if I did use your brother's bike, I'd still have to go home and get my helmet.

Mark: (Laughing as he starts to tease Joe) Helmet? Aw c'mon. Those things are for little kids. You can ride a bike just fine. You don't need a helmet. Let's just go.

Jen: Sorry, Mark, can't. What if something weird happens. I'd rather be safe than sorry.

Mark: You make it sound like riding a bike is dangerous.

Jen: A report I had to do for school made me think about it. In (name of state) (xxx amount) of people have been really hurt and that (xxx amount) of people have been killed in bike crashes. Even if you do survive a crash, a serious injury can lead to permanent problems. I know I don't want to end up having my mom helping me every time I have to do simple things, like eating or using the bathroom. I don't know about you, man, but I'd rather wear the helmet just in case.

Mark: Well. . . .okay. . . .you go do what you have to do. When you're ready, come get me in my room.

Jen: In your room? I thought we're riding to the card store? Why don't we meet at the corner like we usually do?

Mark: Because it's gonna take me at least 15 minutes to find my helmet in my closet!!

Jen: (Laughing) Oh, okay. I'll be back in 15 minutes.

Narrator: Use your head. Use a helmet. After all, it's your head.

PSAs on the Web

The Brain Injury Association of Minnesota has a PSA on its Web site in .mpg format. (www.braininjurymn.org) It's a big file (9 megs), with sound and picture ready to go. For info on using the .mpg, please use the contact info on the site. The PSA shows a kid riding along a neighborhood street when a bully rides alongside, harassing him about his sissy helmet. As they ride, the bully is not paying attention to where he is going, and suddenly collides with a board sticking out the back of a truck, ending the PSA. It is quite a shock, and most people will never figure out that the bully got hit in the face with the board, and a normal bike helmet would not have protected his face anyway.

YouTube has dozens of films on bicycle safety, mostly short. www.youtube.com

Child Bike Safety Talk

A basic lesson plan

Introduction

- Bike Safety is more than wearing a helmet
- It's more than just balance
- You need to learn the survival rules!

What we will cover:

- The four rules to avoid fatal crashes
- Wearing a helmet,
- Bike maintenance for safety
- Teaching your parents how to ride

The Safety Rules Can Protect You

1. Never ride out into a street without stopping first.

Nearly a third of car-bike crashes involving kids occur when the kid rides a bicycle down a driveway or from a sidewalk into the street and in front of a car. You must learn to stop, look left, look right, look left again and listen to be sure no cars are coming before entering a street. Look left that second time because cars coming from the left are on your side of the street and are closer. You need to practice that: look left, look right and look left again. You see the car, but that does not mean the driver sees you! You must always assume that the driver has not. They may be dialing a cell phone or lighting a cigarette. If there are parked cars, be sure to go to the edge of the street before you begin your left-right-left looks.

2. Obey stop signs.

Nearly a third of the car-bike crashes with kids occur when the kid rides through a stop sign or red light in front of traffic. You must learn to stop, look left, look right, then look left again at all stop signs, stop lights and intersections before crossing. If a car reaches the intersection when you do, wait for the driver to wave to you before going through. Lots of times they just don't see you at all. Do you know the basics about stop signs and stop lights? You need to go to a controlled intersection with your parents and practice crossing safely. When you ride in a group, each rider must stop and make sure it is clear before crossing. (see Rule 4 below) If it's a bad intersection, walk your bike. It is the law to obey traffic signals even when no one appears to be coming. And the law about one way streets applies to you. Lots of kids get hit on one way streets going the wrong way because drivers don't expect them to be there.

3. Check behind before swerving, turning or changing lanes.

Nearly a third of the car-bike crashes involving kids occur when a rider turns suddenly into the path of a passing car. You must learn to look behind you, signal and look behind again before swerving, turning or changing lanes. The best place to practice this is in a quiet parking lot or playground. Ride along a straight painted line and practice looking back over your shoulder without swerving off the painted line. You should not ride your bike on a street until you have learned to do that.

4. Never follow another rider without applying the rules.

Many fatalities occur when the first rider violates one of the three rules above and the second one just blindly follows. The accident report will show one of the three rules above caused the crash, but the real reason was following another rider. Running stop signs or red lights, riding out of driveways or zipping across lanes all

seem natural to you because you are following the other rider and not thinking about the rules. So this is a hard one to learn. Be extra careful when you are following another rider.

Lesson Plan - Continued

Wear a helmet!

1. Why wear a helmet?

- Every year over 800 people die in the U.S. from bicycle crashes. Most of them die from head injuries.
- Many more have their brains scrambled and live for a long time or sometimes for the rest of their lives with something that doesn't work right up there. Brain damage can cause learning disabilities, personality changes and rob you of the ability to think clearly.
- Hospital emergency room studies show that a helmet can prevent between 66 and 88 per cent of that—almost all. So you don't want to be riding a bike without one, even on your block, on the sidewalk or on a bike trail. The fall is from the same height wherever you ride!

2. Make sure it fits

Your helmet needs adjustment to give you all the protection you paid for.

- Make sure the pads touch all around.
- Make sure the straps meet in a V just under your ear.
- Adjust the length of the front and back straps to hold the helmet level on your head, not tilted back.
- Make sure the chin strap is snug but doesn't dig in.

With all of that done your helmet should stay on when you shake your head in any direction or have a friend try to pull the helmet off.

3. Don't wear it on the playground

- A few kids have died from strangulation on monkey bars or other playground equipment when their helmet got caught.
- Take your helmet off when you get off your bike. Don't wear it on the playground or when you are climbing trees.

4. Other gear

- Gloves protect the skin on your hands Skaters' knee and elbow pads are good protection too.
- Eye protection helps keep bugs and dust out of your eyes.

Your Bike

- Adjust it to be sure you can reach pedals, bars and brakes comfortably.
- Try the brakes and make sure they are working well.
- Check the tires for air
- Check seat, pedals and handlebars to be sure they are tight.
- Lube the chain if it squeaks. It will break if you don't.

Riding

- Be careful of where you ride. Traffic is a problem almost everywhere.
- Follow the four rules. Do you remember them?

Teach your parents well

Lots of parents never got a talk on bike safety. You can teach them about the safety rules. You can also teach them about helmets. They should wear one to be a good example for you.

Workshop on Bicycle Helmets

The Need

- You always need a helmet wherever and whenever you ride.
- You can expect to crash in your next 4,500 miles of riding, or maybe much sooner than that if you are not careful!
- Head injury causes 75% of our 600+ annual deaths from bicycle crashes. Medical research shows that a bicycle helmet can prevent between 66% and 88% of cyclists' head injuries.
- Helmets are required by law in 22 states and more than 201 localities, mostly for those under 16.

The physics of crashing

- Forward speed is not the most important crash force, it's the fall to the pavement. Even a low-speed fall on a bicycle path can scramble your brains.
- Car crashes are the most deadly, and there the closing speed with the car can be important, but at city speeds the fall after the car hits you and the second hit on the pavement can still be the hardest blow.

The Helmet

- A helmet reduces the peak energy of a sharp impact.
- This requires a layer of stiff foam to cushion the blow by crushing.
- Most bicycle helmets do this with expanded polystyrene (EPS), the familiar picnic cooler foam. Once crushed, EPS does not recover. Another foam, expanded polypropylene (EPP), does recover, but is much less common.
- The helmet must stay on your head even when you hit more than once--usually a car first, and then the road. So it needs a strong strap and an equally strong fastener.
- All bike helmets sold in the US now have to meet the CPSC standard. For skateboarding it's different. We'll cover that later.
- Pick white or a bright color for visibility to be sure that motorists and other cyclists can see you.
- Common sense tells you to look for a smoothly rounded outer shell, with no snag points. Huge vents mean less foam contacting your head and might concentrate force on one point. "Aero" helmets are not noticeably faster for most of us, and in a crash the "tail" could snag or knock the helmet aside. Skinny straps are less comfortable. Rigid visors can snag or shatter in a fall.

Fitting

- Make sure your helmet fits to get all the protection you are paying for.
- A good fit means level on your head, with the foam pads touching all around.
- Adjust the straps first so that the V on the sides meets just below your ear. Then adjust the chin strap comfortably snug.
- The helmet should not move more than about an inch in any direction, and must not pull off no matter how hard you try.
- You may have to tighten the front straps if the helmet tilts back, or the rear straps if it pushes forward. Some helmets don't have that adjustment, and you have to try a different one.
- Be prepared to fuss with the straps a while to get things right.
- It's not enough for the helmet to just sit on your head. The straps have to hold it there or it will be gone when the car hits you and you may hit the pavement with a bare head.

Comfort Requirements

- Coolness, ventilation, fit and sweat control are the most critical comfort needs.
- Air flow over the head determines coolness, and larger front vents provide better air flow.
- If you sweat a lot you may need a brow pad or separate sweatband.
- Weight is not an issue with today's helmets.

Special Problems

- Pony tail ports are useful for anyone with longer hair. They can improve fit and comfort.
- Bald riders should avoid helmets with big top vents to prevent funny tan lines.
- Some head shapes require extra fiddling with fitting pads and straps.
- Very small heads usually need thick fitting pads.
- Very large heads require one of the extra large helmets out there.
- For a softer landing, seniors should pick a thicker, less dense model without huge vents. That's hard to do when we have no test data.

When Must I Replace a Helmet?

- Replace any helmet if you crash. Impact crushes some of the foam, although the damage may not be visible. Helmets work so well that you need to examine them for marks or dents to know if you hit.
- Replace the buckle if it cracks or a piece breaks off.
- Even if you don't crash, most manufacturers recommend replacement after three to five years. We think that depends on usage, and studies have shown that helmets given reasonable care give good impact protection for much longer than that.
- If your helmet is from the 70's, it's time to replace it.
- No one requires you to replace your helmet, so give it some individual thought.

Bike Helmets for Skating?

- The ASTM standards for biking and inline skating are identical. And CPSC says that bike helmets are fine for inline skating.
- Aggressive skating and skateboard helmets are different. They have their own ASTM standard, designed for multiple hits with lesser impact severity.
- If you are skateboarding and falling every day, a one-hit bike helmet is not very well designed for you. You need either a skateboard helmet certified to ASTM F 1492 or a dual-certified helmet that meets both standards and can be used for biking and skateboarding.
- The words on the box are just ads. They may say skateboard, but some of them are just bike helmets. The manufacturer knows that you throw the box away.
- Inside the helmet is a sticker that tells you what standard the helmet *really* meets. Look for that sticker. For skateboarding it must say the helmet meets the ASTM F 1492 skateboard helmet standard. A CPSC sticker is fine for skate boarding if you want to throw the helmet away after your first hit. Call that the Ten Minute Helmet.

Warning! No Helmets on Playgrounds!

- Anyone must remove helmets before climbing on playground equipment or trees, where a helmet can snag and choke them.
- There have been a few choking incidents, some on playgrounds and some in trees.

Bicycle Helmet Safety - Speakers Outline

I. Introduce Self

II. Describe bicycle helmet safety campaign

- A. Groups involved
- B. Summer activities

III. Ask parents to raise hands (A,B) or answer (C,D):

- A. How many have children who ride bikes? Scooters? Skateboards?
- B. How many have children who wear helmets when riding their bikes or other equipment?
- C. Why did they buy their child a helmet?
- D. For parents who have not bought their children helmets what keeps them from doing so?

IV. Statistics

- A. 857 bicyclists died on US roads in 2018
- B. Bicyclist deaths represented 2 per cent of all 2018 traffic fatalities.
- C. 53 Bicyclists 14 and under were killed in 2017.
- D. 75% of fatal crashes were urban.
- E. 81.5% of the cyclists were hit by the front of the vehicle.
- F. 63% were on roads not at intersections. 27% were at intersections. 10% were in other locations.
- G. Besides death, head injuries cause permanent brain damage and cost thousands in medical bills

V. What can you, the parent do?

- A. Buy your child a helmet. See it as an investment in their future. Helmets cost \$8-\$40, but remember that your child will wear it for 5 years. Unlike shoes children do not grow out of helmets quickly. Most have padding that can be removed as the child's head grows, or a fitting ring that can be expanded. CPSC says bike helmets are fine for scooter and skate use, but skateboards have a different helmet.
- B. Make sure the helmet is CPSC approved. Pass around a demonstration helmet and note: 1. Pads or fitting ring. 2. Straps
- C. Require your children to wear it -- see our tips for getting children to wear helmets
- D. Wear one yourself
- E. Remember that your child's bicycle is not a toy It is their first vehicle that needs to follow the rules of the road
- F. Do not buy a bike for your child to grow into. It is harder for him/her to control.
- G. Teach your children how to ride a bike. They do not drive, so do not have the coordination and awareness of rules of the road.
- H. Take a class on bicycle safety yourself so that you are aware of the right information.
- I. Questions?

US DOT free publications

These and more DOT materials are available on our CD from the opening menu or on the video DVDs.

The brochures below are all full color .pdf files. They also print out well in black and white for photocopying. Most of them are on our Toolkit CD as .pdf files, from the opening menu or by opening the file nhtsapam4cd.htm. Four videos are on the video DVDs included in the Toolkit. You can also find them online on NHTSA's web page at www.nhtsa.gov/Bicycles

Bicycle Safety Activity Kit

Activities for children 4 to 7 and 8 to 11 years old. On the CD open nhtsapam4cd.htm. Includes coloring pages, connect-the-dots, word find, crossword, word scramble and more, with nice color graphics if your printer can handle them. Also on the CD in Spanish with all the materials in Spanish too.

Easy Steps to Properly Fit a Bicycle Helmet

And in Spanish:

Consejos y pasos para el uso debido del casco para montar bicicleta

NHTSA's helmet safety sheet. August 2006. On the Toolkit CD as nhtsafit.pdf and spanishfit.pdf



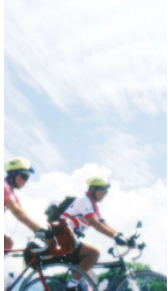
Kids and Bicycle Safety

And in Spanish

Los niños y su seguridad al montar en bicicleta

Probably best for late elementary to mid-school

kids. Sections on Safe Riding Tips, Rules of the Road and Sidewalk Riding. On the Toolkit CD as nhtsakids.pdf and spanishnhtsakids.pdf



7 Smart Routes to Bicycle Safety

Seven ways to bicycle safely. Includes info on helmets, bike maintenance, riding gear and safe riding practices. (May 2007) Included on our Toolkit CD as nhtsa7.pdf

Videos:

Ride Smart, It's Time to Start (for kids)

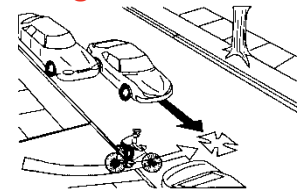
Bike Safe, Bike Smart (for kids)

Bicycle Safety Tips for Adults

Fitting a Bicycle Helmet

All are on the video DVD in our Toolkit. Or view them online as .wma files on NHTSA's web page at www.nhtsa.gov/Bicycles

Prevent Bicycle Crashes: Parents and Caregivers



How to train child cyclists, including diagrams of common types of crashes. On our Toolkit CD as nhtsacrash.pdf



Bicycle Helmet Use Laws: Lessons Learned from Selected Sites

CD,

2004

A study of six helmet laws, including how to get

one passed. On the Web or on the Toolkit CD as nhtsalessons.pdf

And in addition, available on the Web:

- Videos and Clips
- Back to School Safely
- Safe Routes to Schools
- Resource Guides
- Resource Guide on Laws Related to Pedestrian and Bicycle Safety
- Bikeability Checklist

Helmet Materials in Spanish

Latino communities all over the US are lagging behind in bicycle helmet use. Disproportionate numbers of Latinos are being killed and injured in traffic, both on bicycles and while walking. Here are some sources of Spanish program materials. There are links to these programs on our Web page: <http://www.helmets.org/spanish.htm> and a Web search will find many more.

US Dept of Transportation

USDOT has two divisions with many materials. NHTSA has brochures in Spanish available for download. See our Web page at www.helmets.org/spanish.htm for details. In addition, DOT supported the development of the Florida materials mentioned below, and have a big list of posters, pamphlets and other materials for Latino audiences. They have online forms for ordering, and everything is free. We have their Flashcards in Spanish on our site at <http://www.helmets.org/flashcards.htm>

The US Consumer Product Safety Commission

CPSC has a bike safety pamphlet called La Seguridad de las Bicicletas No Es Un Accidente as a .pdf file, and they will send paper copies on request. CPSC also has ¿Qué casco para qué actividad? (Which Helmet for Which Activity). You can order up to 400 copies of CPSC materials on their Web site or call 800-638-2772. (se habla Español)

Texas Bicycle Coalition

TBC has developed a curriculum for training students in 15 lessons that they call the Texas Supercyclist Curriculum. Their materials are all in English and Spanish. The materials available to download include a page on helmet sizing and fitting and a page on the brain. You can find their materials at www.biketexas.org

California Department of Health Services

California has a brochure in Spanish titled !Proteja La Cabeza De Su Nino! that you can download on the Web and print out in full color or in black and white. It's at <http://www.dhs.ca.gov/ps/cdic/epic/bike/documents/BikeHelmetSPAN01.pdf>

The State of Illinois

Illinois has a full color booklet called Los Chicos Y La Bicicleta en Illinois that covers bike safety including helmets in seven pages.
<http://www.dot.state.il.us/bikemap/kidsonbikesspanish/kidsbikespanish.pdf>

Oregon Health Sciences University

OHSU has helmet fitting instructions in Spanish.
<http://www.ohsu.edu/xd/outreach/programs/thinkfirst/helmets/upload/Spanish-Fitting-Guide.pdf>

Phoenix Childrens Hospital

There are Spanish language versions of various helmet campaign materials you can purchase from the Phoenix Children's Hospital/Maricopa County Safe Kids campaign. Contact Susan Bookspan, Bicycle Program, Injury Prevention and Research Center Phoenix Children's Hospital, Outpatient Bldg. #225, 1919 E. Thomas Road, Phoenix, AZ 85016. 602-546-1711 sbookspan@phoenixchildrens.com

Snell Memorial Foundation

The Snell Safety Education Center has a full color pamphlet in Spanish. They ask for a donation (\$2.50 for 50, or \$20 for 500). You can contact them at 916-331-5073 or email info@smf.org, through their Web site at www.smf.org or by postal mail to:

Snell Safety Education Center
3628 Madison Avenue, Suite 11
North Highlands, CA 95660

Safe Kids

Safe Kids Worldwide has two brochures in .pdf format in Spanish: one is Usa tu cabeza. ¡Ponte el casco! - a tip sheet for parents on helmets. The other is called TODO SOBRE RUEDAS - Actividades an activity sheet to test your wheels knowledge. You can access the English versions as well at their Web site: www.safekids.org.

American Automobile Association

AAA has Bike Basics in Spanish and a helmet safety tip bookmark in English/Spanish. They should be available, usually free, from your local AAA club.

Videos

University of California Series: The Bicycle Zone (Elementary), Pedal Smarts (High School/Middle School), and Getting There By Bike (High School/Adult) All three videos are available in English and Spanish. Each is accompanied with a study guide. Available through Transit Media, 22-D Hollywood Ave, Ho-Ho-Kus, NJ 07423. Telephone: 201-652-1989.

NHTSA Fitting video. Included with this Toolkit.

Promoting Helmets in Poor Neighborhoods

Studies consistently find that free helmets distributed in poor neighborhoods are not used for long, even if the kids have to earn them. The conclusion: anything you promote that is not part of the local culture, and is recognized by the recipients as a one-shot safety program, will not last more than a few days or weeks.

Why?

Parents in some neighborhoods live with challenges and stressors that those in more secure environments can't imagine. Guns may be selling on street corners, and gangs may be attempting to recruit 10 year olds. As one parent remarked "You have to choose your battles." And getting kids to wear helmets in light of more real, immediate concerns is not going to be a high priority.

Even if parents talk to their kids about the importance of wearing a helmet it is ultimately up to kids to determine if they are going to wear them. It is common to see middle class teenagers with helmets on their handlebars. They wear them when they leave home to make their parents happy.

The importance of protecting your brain in a crash is not apparent to many kids or parents. They don't know of anyone head-injured in a bicycle crash, including their own crashes.

To promote change we must look at *their* culture and try to fit wearing helmets into that. If it became a "cool" thing for gangs to do, you might have a very high compliance rate! If star athletes or other community role models endorse helmets, kids may be drawn to helmets because they are cool.

The Cincinnati Children's Hospital has developed a program working through churches. Few people are more respected in the African American community than ministers or in the Latino community than priests. Will their endorsement make a difference?

Even if this route shows promise, change will be slow. Peer pressure is difficult to overcome. Still there are immediate, concrete steps communities can take to help ensure these kids' safety on bikes.

Most bikes in impoverished neighborhoods need repairs and quite a few need extensive work. If you distribute helmets in a poor neighborhood, make sure you take a couple of bike mechanics along. They will have plenty of work to do! Other kids are riding bikes that are too large for them to control. There is a shortage of bikes of any sort in poor neighborhoods so kids will ride whatever is available, regardless if the bike is in poor shape or too big. Some communities have established programs that get good working, properly fitting bikes to kids in needy neighborhoods.

As with any safety program we have to meet the immediate short term needs of a group along with working for the long term changes.

This page summarizes an article by Steve Meiers, a safety educator in Madison, Wisconsin, and represents his own views. You can contact him at smeiers@cityofmadison.com for more information. If you want more information about faith-based injury reduction programs contact Anita Brentley: Anita.Brentley@cchmc.org

Helmets made simple

What is a bike helmet

A helmet protects your brain when you fall. It has a plastic shell on the outside and foam inside. It has a strap to keep it on when you fly through the air. It only covers your head, and the rest of your body is still exposed. So you still have to be careful.

How does a helmet work?

The foam crushes when you hit the road. That cushions the blow, and usually saves your brain. The shell makes it skid on the street so your neck does not get jerked. The shell also keeps the foam in one piece. It can split when you hit the car and not be there when you hit the street.

If the strap is not right, your helmet can slip to the side or to the back. Then your bare head hits the road. Ouch. Pavement is very very hard.

Why wear one?

Being careful and not crashing is the best way. That's better than crashing in a helmet! The helmet only covers your head. So you need to learn the rules of the road. But even the best riders crash. If you hurt your brain it can change you. You may not be able to read this page, or play video games, or talk, or run, or even feed yourself.

Some people do not wear bike helmets. Don't let that stop you. You need one when you ride your bike. They do too, but just don't know it yet.

How do I pick one?

A magazine called *Consumer Reports* can tell you what helmets are best. But they don't test very many and they don't test every year. Virginia Tech University has concussion performance ratings online.

First, make sure the helmet has a sticker inside with the letters CPSC somewhere on it. That means it works in a crash. Then find one that fits you. That will keep it on your head while you fly through the air. Work on the straps to get the fit just right.

You don't have to pay a lot for a good helmet. But be sure you like it and will wear it.

Can I wear it to skate?

Yes if you have inline skates. For skateboard use you will need a different helmet, if you are one of the skateboarders who crash a lot.

What if I crash?

You will have to buy a new helmet. It is good for only one crash.



Frequently-asked Questions About Bicycle Helmets

What is the Best Helmet to Buy?

Your first concern should be finding a helmet that fits your individual head. You may have to try on several brands to find one that fits your own head well. Pick one that is round and smooth on the outside without snag points. Then make sure it has a CPSC standard sticker inside, required by law in the US since 1999. Next is wearability: you can see the vents and feel the comfort. Select a bright color for visibility. We don't have to tell you to check the price tag. *Consumer Reports* has helmet rating articles infrequently, but they can only test a small fraction of the models on the market. They find that the best performers are not usually the most expensive models. We think you can do just as well by finding a helmet that fits you well and is round and smooth on the outside.

What Helmet Should I Buy for my Child?

The best toddler helmets are light and ventilated, with impact protection equal to adult helmets and more coverage in the rear required by the CPSC standard. For kids over 5, a junior or small adult helmet works fine. There are no tiny helmets available because nobody recommends riding with a child under one year old, whose neck structure and brain are just not ready yet. If in doubt, take helmet and child to a pediatrician and ask. Kids don't want to look like geeks, so let them pick their helmet out, just as you would for an adult.

What is the Coolest Helmet?

Coolness depends on ventilation, and that depends mostly on the size of the front vents, whatever the ads may say. *Consumer Reports* publishes coolness ratings <http://www.helmets.org/cu.htm>, but don't cover very many helmets. Most riders will not need all the vents you see in the most expensive models.

Where can I get my helmet cheap?

Prices are low at many discount stores. Wal-Mart and Target usually have smooth, round, helmets meeting the CPSC standard starting at \$10, with better-fitting designs starting at about \$15 to \$30. Local bike shops have major brands for \$35 to \$150, with discounts available on the Internet. They all meet the same CPSC certification for impact and strap performance. Cheaper helmets are plainer, have smaller vents and may lack a rear stabilizer, but perform just as well in impact tests. We still recommend buying your first helmet at a bike shop, for help with fitting.

Is a cheap helmet as good as an expensive one?

Consumer Reports has rated the most expensive helmets they tested below most of the cheaper models. Our own testing showed identical performance. All helmet sold in the US are required by law to meet the same CPSC impact standard. If money buys you a better fit, with more stability on your head in a hard crash, then an expensive helmet is worth it. If it just buys you a spiffy-looking, poorly-rounded exterior with excessive vents, foam that is too hard trying make up for that, and points to snag, definitely not.

Does This Helmet Fit Me as Well as it Should?

For best protection you want the helmet level and low on your head. So put thin pads in the top, or no pads at all. Adjust the side pads or fit ring so the helmet touches all the way around at the brim. Then adjust the straps so that the V on the sides meets just below your ear, and the chin strap is just snug against your chin but not too tight. Now shake your head. Then put your palm under the front edge and push up and back. Can you move the helmet more than an inch, exposing your bare forehead? If so,

shorten the strap just in front of your ear, and loosen the rear nape strap behind your ear. Now reach back and grab the back edge. Pull up. Can you move the helmet more than an inch? If so, shorten the nape strap. If the front bumps on your glasses, tighten the nape strap. Now your helmet should be level, solid on your head and comfortable enough to forget you are wearing it most of the time

How can I prevent "strap creep?"

Some straps creep and loosen after only one ride. We suggest buying a helmet with standard-width straps, not the skinny ones. You can add little rubber bands or o-rings to the straps to slide up against the buckle when it is adjusted right to lock it. And after you get your helmet adjusted perfectly, you can sew the strap ends in place.

When Should I Replace My Helmet?

You must replace the helmet after any crash where your head hit. The foam part is made for one-time use, and after crushing once it is no longer as protective as it was, even if it still looks intact. Plastic shells can hide the foam damage, although there are usually at least some scrape marks on the outside. A few helmets made of EPP foam--mostly skate-style helmets--do recover. If in doubt, contact the manufacturer for an inspection. If your helmet is more than 10 years old or has a cloth cover, we recommend that you replace it. Many manufacturers recommend replacement every five years, but some of that is just marketing. Deterioration depends on usage, care, and abuse. If you ride thousands of miles every year, five years or even less may be right, but for most people it's probably too soon.

How does a helmet work?

When you crash and hit a hard surface, the styrofoam part of a helmet crushes, controlling the crash energy and extending your head's stopping time by about six thousandths of a second (6 ms) to reduce the peak impact to the brain. Thicker foam is better, giving your head more room and more milliseconds to stop. The squishy fitting pads are for comfort, not impact. The impact is so hard and sharp that squishy foam just bottoms out immediately. A smooth plastic skin holds the helmet's foam together as it crushes and helps it skid easily on pavement, rather than jerking your head to a stop. Rounder, smoother helmets are safer, since they skid more easily. The straps keep the helmet on your head even after the first impact with the car. A helmet must fit well and be level on your head for the whole head to remain covered after that first impact. The outside should be a bright color for visibility in traffic. Reflective trim is useful at night to help you be seen, but you still need lights on your bike.

Who Has Compulsory Helmet Laws? Do they work?

Twenty-two states: Alabama, California, Connecticut, Delaware, DC, Florida, Georgia, Hawaii, Louisiana, Maine, Maryland, Massachusetts, New Hampshire, New Jersey, New Mexico, New York, North Carolina, Oregon, Pennsylvania, Rhode Island, Tennessee and West Virginia, including the District of Columbia require helmets for some riders, usually under age 16. So do over 201 cities and counties. We have the current list at the end of this package. More than a half of the under-16 population of the U.S. lives in one of those states or cities. Enforcement is rare, and helmet acceptance is probably too low for compulsory laws to work well at present in most areas. New Jersey reported a 60% reduction in fatalities for the age group covered in the five years after they adopted their law.

11. What's New in Helmets?

There are more bright colors. Some helmets with oversized vents are very cool but have less foam in contact with your head, and that could concentrate crash forces. Some have easier strap adjustments and many have rear stabilizers to improve fit. At the higher end, fewer designs still have sharper, squarer lines. The newer compact and trail models have better profiles, as do skate-style helmets. There are helmets made for downhill mountain bike racing with face protection. Some models have new technology to help reduce rotational force in some situations. A few manufacturers produce "multi-sport" or dual-certified helmets, for biking and skateboarding. Helmets are cool, cheap and effective, and this is a good year to be buying one. But there is no compelling reason to upgrade if your current helmet is still meeting your needs.

Children's Safety Network

BICYCLE HELMETS SAVE MEDICAL COSTS FOR CHILDREN

Annually, 196 children younger than age 15 die from bicycle-related injuries. Approximately 8,900 additional children were hospitalized for bicycle-related injuries, and another 344,000 were treated and released in emergency departments. Bicycle helmets prevent 52 to 60 percent of bike-related head injury deaths (for all ages), as well as an estimated 66 to 88 percent of nonfatal head and scalp injuries, and 65 percent of upper and middle face injuries, even when misuse is considered. Thus, bicycle helmets significantly reduce the total medical costs for bike-related head injuries.

A. COSTS SAVED

- Every \$10 bike helmet generates \$570 in benefits to society.¹
- These savings include \$50 in medical costs, \$140 in future earnings and other tangible resources, and \$380 in quality of life costs.
- For each child bicycle helmet law that is passed, it costs \$11 per new user and generates \$570 in benefits to society.

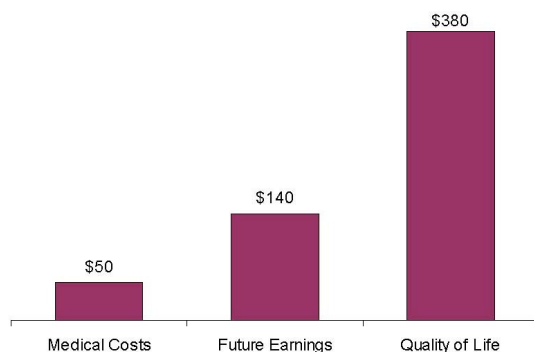
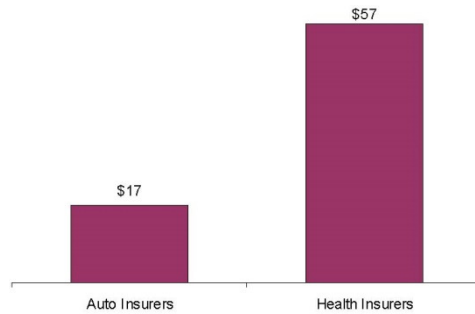


Figure 1. Every \$10 Bike Helmet for Kids Saves \$570

- If 85 percent of all child cyclists wore helmets in 1 year, the lifetime medical cost savings would total \$197 to \$256 million.
- It is very expensive to treat a child with a bike-related head injury. These medical costs may sometimes last the child's lifetime. For example, in 1991, bicycle crashes to children ages 4 to 15 caused 52,000 nonfatal head injuries and 93,000 nonfatal face scalp injuries. Lifetime medical payments for these injuries will approach \$394 million.
- 2,200 of the children who sustain these head injuries will suffer permanent disabilities that will affect their ability to work. Universal bicycle helmet use by children aged 4 to 15 would prevent 1,200 to 1,700 of these permanently disabling injuries.
- Every bicycle helmet saves health insurers \$57 and auto insurers \$17.

¹ Although the retail cost of bicycle helmets typically range from \$10 to \$70, nonprofit organizations can buy them in bulk for as little as \$7 and distribute them nearly at cost.

Figure 2. Insurers' Benefits per Bike Helmet



- These cost savings estimates may be conservative, as they ignore other significant benefits. For example:
 - Parents will spend less time and money caring for injured children.
 - Lawyers will file fewer lawsuits seeking compensation for child cyclists' injuries.

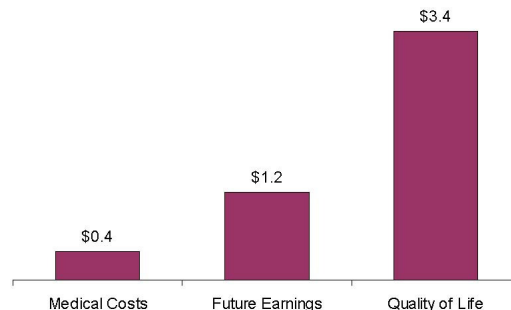
B. LIVES SAVED AND INJURIES PREVENTED

- Universal bike helmet use by children aged 0 to 14 would prevent 212 to 294 deaths annually.
- Universal bike helmet use by children aged 0 to 14 would prevent 382,000 to 529,000 bicycle-related injuries annually.

C. BICYCLE HELMET USE

- Helmet use among children aged 14 and younger is approximately 15 percent nationwide.
- Parents report that 85 percent of children who own bicycle helmets wear them. The usage rate does not vary by income.

Figure 3. Costs of Child Bicycle-related Head Injuries: \$5 Billion per Year (2004 dollars)



Note: All costs are in 2004 dollars and were computed using the methodology outlined by Miller, Romano, and Spicer [2000]. Numbers may not correspond to totals due to rounding.



Children's Safety Network Economics and Data Analysis Resource Center (www.edarc.org)
Phone: 301-755-2728 E-mail: sheppard@pire.org

Pacific Institute for Research and Evaluation 11720 Beltsville Drive, Suite 900, Calverton, MD 20705

Rev: 10/05



April, 2005

Alert: Playgrounds and Helmets Don't Mix!

On February 4, 1999 a Pennsylvania child wearing a bicycle helmet died while playing on playground equipment. He was caught between two non-standard overlapping horizontal platforms when his helmet would not fit through the gap that his lower body had already gone through. Pressure on his chest as his lower body dangled prevented him from breathing. The gap was measured by reporter Mark Scolforo of the *York Dispatch* at 8.75 inches. That would not be permitted under the ASTM playground equipment standard. It bans all openings from 3.5 to 9 inches. We are not aware of any similar incidents in the US since this one.

While the equipment was not standard in this case, it is now evident that this problem can happen here. A few earlier incidents in Scandinavia and Canada had been reported, but none had surfaced in the US. We had attributed that to the US playground equipment standard. But we now know that several incidents had been reported where injury did not result. Unlike the Pennsylvania incident, the Canadian and Scandinavian incidents were "hangings" where the child was strangled by the helmet strap. A strong strap is necessary to keep a helmet on the child's head during a crash, and helmets with strong straps have saved tens of thousands of lives, so these incidents must be seen in that perspective. All of the incidents involved boys under the age of six. A European playground equipment standard bans openings between 110 and 230 mm (4.3 to 9.1 inches). The European CEN standard for child helmets now has a weak buckle, called a "green" buckle, but it is optional.

Troxel, formerly a major US manufacturer, reported in 1997 that one of their helmets had snagged on a swing and a child was nearly choked. Troxel added a general warning to their helmet labels to the effect that use in activities other than bicycling could result in a choking hazard.

ASTM, CPSC and other standards organizations in this country considered the Scandinavian evidence but did not take action because no similar incidents had been reported in the US. The assumption was that playground equipment meeting US standards did not have the hazard. In fact, the US standard has restrictions on openings that are almost the same as the Swedish standard, from 3.5 to 9 inches. The National Program for Playground Safety may add a signage requirement on this hazard. CPSC has issued a warning. The ASTM F8.53 Headgear subcommittee discussed this subject in Seattle on May 20, 1999. An option for the short term would appear to be adding a requirement for a warning label to the ASTM Infant Toddler Helmet standard, and perhaps its adult bicycle helmet standard as well. It may also be possible to improve the shape of toddler helmets to avoid snagging. For the longer term, BHSI has suggested developing a "slow release buckle" that would pass the current ASTM standard for severe jerks but would also release after 5 seconds of sustained pull. Manufacturers tell us that the technology for such a buckle does not exist at present. ASTM rejected the European approach using a weak buckle as too likely to release without cause in a crash.

For the present, parents should make sure their children remove their helmets before climbing trees or playing on playground equipment. They should also check playground equipment against the ASTM standard for hazardous configurations, particularly on older or custom-made equipment.

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A CASE CONTROL STUDY OF THE EFFECTIVENESS OF BICYCLE SAFETY HELMETS

Robert S. Thompson, M.D., Frederick P. Rivara, M.D., M.P.H., and Diane C. Thompson, M.S.

Abstract Bicycling accidents cause many serious injuries and, in the United States, about 1300 deaths per year, mainly from head injuries. Safety Helmets are widely recommended for cyclists, but convincing evidence of their effectiveness is lacking. Over one year we conducted a case-control study in which the case patients were 235 persons with head injuries received while bicycling, who sought emergency care at one of five hospitals. Our control group consisted of 433 persons who received emergency care at the same hospitals for bicycling injuries not involving the head. A second control group consisted of 558 members of a large health maintenance organization who had had bicycling accidents during the previous year.

Seven percent of the case patients were wearing helmets at the time of their head injuries, as compared with

24 percent of the emergency room controls and 23 percent of the second control group. Of the 99 cyclists with serious brain injury only 4 percent wore helmets. In regression analysis to control for age, sex, income, education, cycling experience, and the severity of the accident, we found that riders with helmets had an 85 percent reduction in their risk of head injury (odds ratio, 0.15; 95 percent confidence interval, 0.07 to 0.29) and an 88 percent reduction in their risk of brain injury (odds ratio, 0.12; 95 percent confidence interval, 0.04 to 0.40).

We conclude that bicycle safety helmets are highly effective in preventing head injury. Helmets are particularly important for children, since they suffer the majority of serious head injuries from bicycling accidents (N Engl J Med 1989; 320:1361-7.)

Note: Subsequent studies by the same authors revised the risk reduction percentages to a range between 66 and 88 per cent.

1989 Study Proved Bicycle Helmet Effectiveness

A North Carolina Bicycle Program newsletter article

A landmark study published in a 1989 issue of the New England Journal of Medicine proved conclusively that bicycle riders who wear helmets can dramatically reduce their risk of head injuries. In this report, "A Case-Control Study of the Effectiveness of Bicycle Safety Helmets," helmet use was shown to reduce head injuries by 85% and brain damage by 88%. Furthermore, the study concluded that people who ride without helmets are seven times more likely to suffer head injuries and eight times more likely to suffer brain damage in a crash than those who wear helmets.

Previous studies had indicated that the most common cause of death and serious disability in bicycle crashes is head injury. In fact, head injuries account for 70 – 80% of bicycle-related deaths, 33% of bicycle riders treated in emergency rooms and 66% of hospital admissions resulting from bicycle crashes. Given that 1300 people die each year in bicycle accidents and over 575,000 receive hospital emergency room treatment, increased helmet use would significantly reduce the number of deaths and serious injuries from bicycle accidents.

Major findings of this new study, based on injuries treated at five hospitals in the Seattle area, revealed the following:

- Children under 15 years of age suffered 61% of the head injuries and 68% of the severe brain injuries. Only 4% of the injured children wore helmets.
- Adults over 25 years of age suffered 26% of the injuries. Only 20% of the injured adults wore helmets.
- While 30% of the injured riders wore helmets, only 7% of them were wearing their helmets at the time of their crash.
- The most common cause of accidents was falls (37%), crashing into stationary objects such as parked cars, bumps and curbs (24%), and bicycle-motor vehicle collisions (23%).
- About 38% of the accidents occurred when the rider was traveling 5 – 15 miles per hour, 32% at less than 5 miles per hour, and 22% at greater than 15 miles per hour.
- Damage to the bicycle occurred in 55% of the accidents.

The researchers noted that while helmets have long been recommended for cyclists, there has been little reliable data to demonstrate their effectiveness in averting injury. "Safety helmets are effective, but they are not being used enough. The time has come for a major campaign to increase their use." They offer the following recommendations:

- Parents and physicians need to be better educated about how important helmets are in preventing head injuries in children.
- Marketing campaigns to counter the negative "nerd factor" associated with helmet use should be undertaken.
- More comfortable helmets must be developed.
- Retailers should tie the sale of a helmet to the sale of a bicycle.

This article can be reprinted in your organization's newsletter. Please feel free to modify the text to include information on your local helmet campaign or bicycle safety program. Please send a copy to: NC Bicycle Program, P.O. box 25201, Raleigh, NC 27611.



Helmet Standards

1. Do standards still matter now that we have a law?

All bicycle helmets sold in the US market must meet the Consumer Product Safety Commission standard for impact and strap strength. Standards are useful to test things you can't judge for yourself in a store: impact performance and strap performance. A standard sets minimum requirements, but does not tell you what manufacturers exceed the requirements. So the standards sticker in a helmet eliminates inferior helmets rather than identifying the superior ones.

2. Whose standard is best?

- The **CPSC** standard is required by US law for helmets made after 1999. Helmets for promotion programs must have a sticker inside certifying that they meet the CPSC standard.
- **ASTM** is the American Society for Testing and Materials, a voluntary standards-setting organization. Look for an ASTM F1492 sticker for skateboard helmets.
- The **Snell Memorial Foundation** sets a somewhat higher B-95 standard, but many helmets with a Snell sticker meet only their older B-90 standard, comparable to CPSC. Snell tests helmets independently in their own labs to certify them.

3. What does that mean for my promotion program?

On our Inexpensive Helmets page you will find helmets that meet the CPSC standard. For more info on brands, check the latest *Consumer Reports* article, reviewed below. Any CPSC helmet meets the legally-mandated U.S. Government standard, the minimum requirement for helmet promotion programs.

4. How do they compare?

Standard	CPSC	ASTM	Snell B-90	Snell B-95
Drop Height (flat anvil)	2 meters	2 meters	2 meters	2.2 meters
Drop Height (rounded anvil)	1.2 meters	1.2 meters	1.3 meters +	1.3 meters +
Maximum g's allowed	300 g	300 g	300 g	300 g
Strap Strength jerk	23.5 joules	23.5 joules	20.5 joules	20.5 joules
Rolloff from dummy head	Standard test	Standard test	Standard test	Standard test
Coverage: Adult	Standard	Standard	Standard	Extra
Coverage: Toddler	Extra	Extra	Standard +	Extra
Certification	By law	Mfg. or a lab	Snell	Snell



Helmets.org

The Bicycle Helmet Safety Institute

A consumer-funded program

4611 Seventh Street South, Arlington, VA 22204-1419

703-486-0100

www.helmets.org

info@helmets.org

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Bicycle Helmets for the 2020 Season

Summary: The most evident change in bike helmets for 2020 is the introduction of new helmet liners pushing beyond the thin layer MIPS slip-plane and providing a thicker layer that can deform directionally to mitigate rotational energy. New technology has been reaching the marketplace, and Virginia Tech has published independent test results confirming better performance of some models. There are more Smart Helmets that feature new lights, communications or electronics.

If your current helmet has the older elongated shape with snag points in the rear you might consider replacing it with one of today's updated better-rounded compact models. Rotational energy in a crash can be reduced by a helmet's external shape. And you might want to consider models from a number of manufactures promising better internal management of rotational energy. You can find junk and counterfeit helmets online, but almost all of the helmets on the market meet standards and offer good if not excellent protection. We recommend looking for a helmet that fits you well, pleases you as wearing apparel and has a rounded, smooth exterior with no major snag points.

Trends this year

Helmets are beginning to evolve more rapidly this year. There are new models in 2020 that are worth a look if you need a new helmet. The rounded compact profile that we think is best when you crash has largely taken over the market. There is still no verified major advance in impact performance, ventilation or wearability this year that would compel you to replace your current helmet, but there is new technology available that is worth considering.

Concussion protection dominates helmet news, brought up by football injury publicity. Virginia Tech is testing helmets for their ability to reduce concussions. We have some reservations about the computations behind their ratings, but we support the concept of trying to rank helmets for low-level impact performance. *Consumer Reports* now lists "rotational force-reducing tech like MIPS or WaveCel" as their first criterion for selecting a new helmet. POC led the parade with a MIPS helmet years ago, and others have kept pace: 6D, Kali and Leatt have elastomer pads that can move sideways. Trek has Bontrager models with an inner liner of a material called WaveCel, a plastic mesh that collapses on impact and can slip sideways while doing so. We expect many more in 2020, responding to marketing pressure.

There are many new smart helmet models with some combination of front and rear cameras, phone integration, WiFi, navigation connections, turn signals, brake lights, music players, intercoms, connections to bike computers and even impact sensors. There are more options for those who want a heavier, more protective road helmet. Impact liners are evolving, including HEXR's 3d printed helmet, Smith's models with collapsible plastic modules looking like hollow straws, POC's honeycomb material, Kali's carbon nanotube material and Conehead designs with dual density impact foam in helmet liners. Others are adding internal rubberized fittings that can deform directionally.

More folding helmets are coming to market, and more helmets for electric bikes. Strap adjustment fittings--buckles and side Junctions--still need improvement. Many of them slip too easily, causing "strap creep". POC and Volvo are crashing helmets on car anvils. Anti-microbial helmet pad materials using silver or other chemicals might be useful if you are having unusual helmet odor problems. If you want to reduce your exposure to chemicals and metals they may not be something you want to have held against your sweating head on every ride. Fake and counterfeit helmets are a growing problem.



January 2020

Consumer Reports' Most Recent Helmet Article

Summary: Consumer Reports updated its bicycle helmet report on the web site in 2018, with test results for two MIPS models compared to non-MIPS versions. In earlier testing they found that MIPS reduced rotational force up to 43 percent, but drew no conclusions about what that might mean for injury. They give Excellent impact protection ratings to 24 models, with most of the remaining ones scoring Very Good. They recommended 19 models. Of those they pick five Best Buys, including one MIPS model and four without MIPS. No helmets tested were rated Do Not Buy.

Rated helmets: CU now rates helmets by Bell, Bern, Bontrager, Cannondale, Garneau, Giro, Kali, Lazer, Nutcase, Overade, Raskullz, Razor, Schwinn, Scott, Shred, Specialized, Uvex and Wipeout.

Scores

The highest overall scores are for the Scott Arx Plus, Bell Muni, Bell Draft, Bell Draft MIPS, Bell Stratus MIPS, Cannondale Teramo, Giro Revel MIPS, Giro Foray, Lazer Cyclone and Giro Revel. The Bell Draft scored higher than its MIPS twin due to better ventilation. Lowest scores from the bottom up: Wipeout Dry Erase, Raskullz Mohawk, Bell Disney Frozen Tiara, Razor V17, Bell Block and Giro Scamp MIPS.

Impact protection ratings

The impact ratings have been CU's biggest contribution to consumer information, and one of our key criteria for helmet choice. After testing more than 38 models in the lab, CU has rated 24 of them Excellent: Scott Arx Plus, Bell Muni, Bell Draft, Bell Draft MIPS, Bell Stratus MIPS, Cannondale Teramo, Giro Revel MIPS, Giro Foray, Lazer Cyclone, Giro Revel, Schwinn Intercept Adult, Cannondale Quick, Giro Bishop, Garneau Raid MIPS, Bontrager Starvos, Specialized Chamonix MIPS, Specialized Align, Garneau Sharp, Bontrager Solstice Youth, Garneau Nino, Bell Sidetrack MIPS, Uvex Quatro Junior, Specialized Shuffle Youth SB, Giro Scamp MIPS, Razor V17, Bell Disney Frozen Tiara and Raskullz Mohawk. Note that some that were rated Excellent for impact protection had low overall scores for other reasons. The remaining helmets were mostly rated Very Good, with a few only good. We consider the impact ratings the most important element. You can now combine them with the Virginia Tech concussion protection ratings to find a helmet rated for both major impact protection and lower-level impact protection.

Fit

Fit is our second key criterion, and here CU was more discriminating. They rated Excellent the Scott Arx Plus, Bell Muni, Kali City, Bell Draft, Bell Draft MIPS, Cannondale Teramo, Giro Revel MIPS, Giro Foray, Lazer Cyclone, Giro Revel, Schwinn Intercept Adult, Cannondale Quick, Giro Trinity and Giro Bishop.

Ventilation

Only the Bell Draft, Specialized Chamonix and Specialized Chamonix MIPS rated Excellent for ventilation. The Smith Forefront, with a liner partially made of hollow Koroyd[™] straws, was rated only Good in the original 2016 article and has disappeared on the web page now. Ten models are rated Poor.

Concussion?

CU discussed recent concussion concerns. They had tested MIPS vs Non-MIPS models and found that MIPS reduced rotational force by 43 percent. We do not know what testing protocols they used. They concluded that "The MIPS helmets in our ratings are priced \$20 to \$25 more than the non-MIPS versions. Even if the extra benefit isn't definitive, a MIPS helmet might be worth the extra cost."



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January, 2020

Mandatory Helmet Laws: A Summary

Summary: There is no national helmet law in the U.S. The states and localities below began adopting laws in 1987. Most are limited to children under 18, but there are 49 all-ages laws. At present there are 22 state-wide laws including the District of Columbia, and more than 202 local ordinances. More info on helmet laws follows the list.

Jurisdiction	Year	Ages	Jurisdiction	Year	Ages
Alabama			State Law	1999	Under 16
State Law	1995	Under 16	Maryland		
Montevallo	1993	All ages	State Law	1995	Under 16
Homewood	1994	All ages	Allegheny County	1992	Under 16
Alaska			Howard County	1990	Under 16
Anchorage	2005	Under 16	Montgomery County	1991	Under 18
Bethel	2004	Under 18	Sykesville	1995	All ages
Juneau	2006	Under 18	Massachusetts		
Kenai	2004	Under 16	State Passengers/Riders *	1990/94/04	Under 5 / 13 / 17
Sitka	2005	Under 18	Michigan		
Arizona			Adrian	1998	Under 15
Flagstaff	2010	Under 18	E. Grand Rapids	1995	Under 18
Pima County	1995	Under 18	Farmington Hills *	1999	Under 16
Sierra Vista			Kensington Metropark	1998	All ages
Tucson	1993	Under 18	Mississippi		
Yuma	1997	Under 18	Hernando *	2010	Under 17
California			Ridgeland	2010	
State: Passengers-1987/Riders *	1987/94/03	Under5/Under18	Starkville	2010	All ages
Bidwell Park, Chico	1991	All ages	Missouri		
El Cerrito	1993	All ages	St Louis Co. Parks/Unincorp/All	2001/02/08	1 to 16
Connecticut			St. Louis Co Municipalities:		
State Law	1993/7	Under 16	Ballwin	2006	Under 17
Seymour (Repealed)	1998	All ages	Bel-Ridge	2002	All ages
Delaware			Bella Villa	2005	Under 17
State Law	1996	Under 16	Bellefontaine Neighbors	2005	Under 17
District of Columbia*	2000	Under 16	Berkeley	2000	All ages
Florida			Black Jack	2008	All ages
State Law	1997	Under 16	Calverton Park	2001	All ages
Georgia			Chesterfield	2008	Under 17
State Law	1993	Under 16	Clayton	2005	Under 17
Hawaii			Creve Coeur	2000	All ages
State Law			Ellisville	2005	Under 17
Illinois			Florissant	2003	Under 17
Barrington	1997	Under 17	Glendale	2008	All ages
Chicago: Messengers only		All ages	Grantwood Village	2003	All ages
Cicero	1997	Under 16	Hanley Hills	2007	Under 17
Inverness	1999	Under 16	Hazelwood	2007	Under 17
Libertyville (incentives only)	1997		Hillsdale		
Skokie	2002	Under 16	Moline Acres	2008	Under 17

Kansas				Normandy	2004	Under 17
Lawrence*	2004	Under 15		Northwoods	2003	Under 17
Kentucky				Norwood Court	2004	Under 17
Louisville: Parks only	2002	Under 18		Olivette	2005	Under 17
Louisville Extreme Park	2002	All ages		Overland	2005	Under 17
Louisiana				Pagedale	2002	All ages
State Law	2002	Under 12		Riverview	2008	Under 17
Maine				Rock Hill	2003	Under 17
St. John	2001	Under 17		Lakewood	1997	Under 18
Sycamore Hills	2008	All ages		Madeira *	2002	Under 17
Town & Country	2002	All ages		Marietta	2004	Under 16
Velda City	2006	All ages		Orange Village	1992	6 to 15
Velda Village Hills	2005	All ages		Pepper Pike	2000	Under 18
Vinita Terrace	2001	Under 21		Shaker Heights	1997	All over 5
Webster Groves	2004	Under 17		South Euclid	2000	Under 14
Wellston				Strongsville	1993	Under 12
Wilber Park	2005	Under 17		Waynesville *	2000	Under 17
Wildwood	2005	Under 17		Oklahoma		
Non-St.Louis Co Municipalities:				Norman	2003	Under 18
Columbia *	2003	Under 16		Oklahoma City: city property only	1999	All ages
St. Charles	2006	Under 16		Oregon		
Montana				State Law *	1994	Under 16
Billings	2001	Under 16		Pennsylvania		
Nevada				State Law: Passengers/Riders	1991/95	Under 5/12
Duckwater Indian Reservation	2001	Under 17		Rhode Island		
Reno/Sparks Indian Colony	2002	Under 17		State Law *	1996/8/07	Under 16
New Hampshire				Tennessee		
State Law	2006	Under 16		State Law	1994/00	Under 16
New Jersey				Clarksville	1993	All ages
State Law	1992/05	Under 17		Texas		
New Mexico				Arlington	1997	Under 18
State Law	2007	Under 18		Austin	1996/7	Under 18
Los Alamos County	1995	Under 18		Bedford	1996	Under 16
New York				Benbrook	1996	Under 17
State:Pass./Riders	1989/94/04	Under 5/14/ *		Coppell	1997	Under 15
Eastchester *	2004	Under 19		Dallas	1996/2014	Under 18
Erie Co. Parks	1993	All ages		Fort Worth	1996	Under 18
Greenburgh	1994	All ages		Houston	1995	Under 18
Guilderland	1992	Under 14		Southlake	1999	Under 15
Onandaga Co/Syracuse	2001	Under 18		Virginia		
Rockland County	1992	All ages		Albemarle County		Under 15
Suffolk County	2000	ages 14 to 17		Alexandria	1994	Under 15
North Carolina				Amherst County	1993	Under 15
State Law	2001	Under 16		Arlington County	1993	Under 15
Black Mountain	1996	All ages		Blacksburg	1994	Under 15
Boone	1995	All ages		Clarke County		Under 15
Carolina Beach	1994	Under 16		Fairfax County	1993	Under 15
Carrboro	1997	Under 16		Falls Church	1993	Under 15
Cary	2001	Under 16		Floyd County		Under 15
Chapel Hill	1992	Under 16		Front Royal	1996	Under 15
Charlotte *	2002	Under 16		Hampton	1999	Under 15
Cornelius *	2001	Under 16		Harrisonburg		Under 15
Greenville	1998	Under 16		James City County	1999	Under 15
Matthews	2001	Under 16		Luray		Under 15
Ohio				Manassas	1995	Under 15
Akron	2001	Under 16		Manassas Park	1997	Under 15
Beachwood	1990	Under 16		Newport News	1997	Under 15
Bexley	2010	Under 16		Norfolk	2001	Under 15
Blue Ash	2003	Under 16		Orange County		Under 15
Brecksville *	1998	Under 18		Petersburg	2000	Under 15
Brooklyn	2001	Under 14		Prince William County	1995	Under 15
Centerville	1999	Under 18		Radford	2000	Under 15
Cincinnati *	2004	Under 16		Roanoke	2000	Under 15

Columbus	2009	Under 18		Salem	2000	Under 15
Dayton	2004	Under 13		Stafford County		Under 15
East Cleveland	2004	Under 18		Vienna		Under 15
Enon *	2004	Under 16		Virginia Beach	1995	Under 15
Euclid	2001	Under 14		Williamsburg	2001	Under 15
Glendale *	2000	Under 19		Wise		Under 15
Kettering *	2004	Under 16		York County	1994	Under 15
Washington State				Port Orchard	2004	All ages
Aberdeen	2001	All ages		Poulsbo	1995	Under 18
Auburn	2005	All ages		Puyallup	1994	All ages
Bainbridge Island	2001	All ages		Renton	1999	All ages
Bellevue	2002	All ages		Seatac	1999	All over 1 yr.
Bremerton	2000	All ages		Seattle	2003	All ages
Des Moines	1993	All ages		Snohomish city-wide all ages	Repealed	in 2002
DuPont		All ages		Snohomish Skate Park *	2002	All ages
Duvall	1993	All ages		Snoqualmie	1996	All ages
Eatonville	1996	Under 16		Spokane *	2004	All ages
Enumclaw	1993	All ages		Steilacoom	1995	All ages
Fircrest	1995	All ages		Tacoma	1994	All ages
Gig Harbor	1996	All ages		University Place	1996	All ages
Hunts Point	1993	All ages		Vancouver	2008	All ages
Island County (recommendation only)	1997			West Virginia		
Kent	1999	All ages		State Law	1996	Under 15
King County	1993/03	All ages		Clarksburg	1993	Under 18
Lakewood	1996	All ages		Morgantown	1993	All ages
Milton *	1997	All ages		South Charleston	1994	Under 18
Orting	1997	Under 17		St. Albans	1995	Under 18
Pierce County	1994	All ages		Wisconsin		
Port Angeles	1994	All ages		Port Washington	1997	Under 17

*Covers skaters, scooters tricycles , unicycles and/or skateboards. **Total State laws: 22** (with DC). **Total Localities: 201**

The 22 states (including DC) and over 202 localities with helmet laws include more than half of the population of the U.S., but most of the laws do not cover adults. Laws have been proposed in at least 20 other states, but few have been adopted in recent years.

Some Results in the US

New York State reported that since it introduced its first helmet law in 1989 for passengers under 5, and its second in 1994 for riders under 14, the annual rate of cyclists hospitalized from bicycle-related traumatic brain injuries fell for the under 14 group from 464 in 1990 to 209 in 1995. The rate for cyclists 14 and over for the same years declined less rapidly, from 454 to 382. There is no way to determine exactly what proportion of the improvement was due to helmet laws, since there is no data on improvements to bicycle facility safety, rider education or total miles ridden in those years, and helmet promotion campaigns by Safe Kids Worldwide and others were active in the state. But it is likely that increased helmet use, prompted by passage of the first law in 1989 and the promotion campaigns in New York communities, played a role in the reduction of injuries.

New Jersey reported in July of 1997 that since it introduced a helmet law for kids under 14 the number of bicycle-related fatalities for that group fell by 60 per cent, from 41 in 1987-1991 to 16 in 1992-1997. For riders age 14 and over the figures were 75 and 71. The School Board of Sommers Point, NJ added a helmet rule and boosted helmet use by those who ride to school from 6 per cent up to more than 70 per cent. Their attorney thought that failure to require helmets could leave the School District liable in the event of an injury.

Duval County, Florida, reported an increase in helmet use by all ages from 19 per cent in 1996 to 47 per cent in 1997 after the Florida law was passed. Bicycle deaths fell from five to one, and injuries from 325 to 105. Results were even better in the age group covered by the law. Hillsborough County, Florida, also reports an increase in helmet use and a decline in injuries after passage of the same law.

A study done in North Carolina using actual field observation before (1999) and after (2002) their law covering kids under 16 passed showed a small increase in adult helmet use but no increase for kids covered by the law. Overall on-street NC helmet use went from 18% to 24%, with larger gains among mountain

bikers. The study concluded that "statistical analyses indicate that the law failed to generate a differential increase in helmet use by children ages zero to 15 years, mandated to wear helmets, compared with those ages 16 and above and not covered by the law. Although the difference in helmet use between surveys (1999 pre-law and 2002 post-law) was significant, it is clear that the helmet requirement has had little effect on increasing helmet use by children thus far." As far as we know they have not updated the study since 2002.

A study published in *Pediatrics* in 2002 found that in Canada the bicycle-related head injury rate declined significantly (45% reduction) in provinces where legislation had been adopted compared with provinces and territories that did not adopt legislation (27% reduction). A 2010 Canadian study showed that bicycle usage remained constant after helmet laws were adopted in two provinces, and that helmet use was increased more by all-ages laws than those applying only to children.

A study of California statistics by Lee et al published in *Accident Analysis & Prevention* in 2005 shows that head injuries in the under-16 group covered by the law went down by 18.2 per cent in California after the state helmet law was passed. There was no change in adult head injury rates.

This statistical analysis concludes that passing a state-wide bicycle helmet law covering youth riders reduces cycling by those who are covered by the law by 4 to 5 per cent. We note a number of problems with the data they used, but are still concerned about the conclusion. No actual rider counts have ever shown that result anywhere in the US.

Notes

A number of the laws above include skaters, skateboarders, scooters and in New Mexico's case, tricycle riders. Austin, Texas and Barrington, Illinois tried all ages laws and reduced them to under 18. Seymour, Connecticut passed a law and then repealed it. An attempt in 1999 to force a referendum on the Farmington Hills, Michigan, law for riders under 16 failed for lack of signatures. Snohomish, WA, repealed its city-wide law to make way for a state law. The Canadian province of British Columbia has made exceptions to their all-ages law for medical exemptions, those with heads larger than size 8 and religious headgear. The City of Oakwood, Ohio, adopted a resolution encouraging helmets. It directs the Safety Department (Police) to develop educational programs for helmet safety. It also provides the authority for officers to "wave over" minor cyclists who are not using helmets. No fines or other deterrents are permissible as this is not an ordinance.

Most bicycle clubs, the US racers' organization (USA Cycling) and the Triathlon Federation require helmets in their events, although they may not support helmet laws. U.S. military regulations require helmets on military facilities. The National Bicycle Dealers Association opposes mandatory helmet laws. *Bicycle Retailer and Industry News* has editorialized against them.

Our View

BHSI supports carefully drawn mandatory helmet laws covering all ages because we believe they are needed to raise awareness that helmets save lives, in the same way that seatbelt and smoke detector laws were used to inform the public. Many riders and parents do not know that they need a helmet, and the laws educate as much as they force compliance, since they are rarely enforced. We also believe that most riders regard helmets as a fashion item rather than as a safety appliance, and like any other fashion this one may wane. We support efforts to improve the safety of the cycling environment to reduce the need for helmets, the primary injury prevention measure for reducing all injuries to cyclists. We do not believe that wearing a helmet causes riders to take additional risks. We believe that in this country promoting helmets will not detract from the effort to improve road safety, and in fact has stimulated those efforts, giving us the most widespread and best-supported campaigns for better road safety for cyclists that we have ever had in our history. Since bikes are vehicles, requiring a bicycle helmet is as reasonable as requiring a helmet on a motorcycle rider or requiring seatbelt usage in cars. We would support medical exemptions based on a doctor's certification or requirements for religious headgear. We are keenly aware that safer cycling requires more riders on the streets, but we do not believe that helmets discourage cycling in the US.

Despite that statement, we have always been a lot more enthusiastic about promoting voluntary use of helmets than promoting laws, and it would appear from the list above that most U.S. states and localities are

too. Even seatbelt laws that have been around for a long time are mostly secondary offense laws limiting enforcement to occasions when a driver has been stopped for something else. Helmet laws can be useful, but given the problems with enforcing them they will probably not work well in most places until more riders have accepted the need for wearing a helmet. So we favor a stronger push for voluntary usage than for passing new helmet laws, and our promotion campaign materials reflect that attitude.