

When preparing to ride in cold weather, several layers of clothing are necessary, usually starting with thermal underwear. Extra layers of pants, shirts and jackets should be worn to aid body heat in forming a warm insulation. Topping your clothing with a windproof outer layer will prevent the cold wind from reaching your body.

Another alternative when riding in cold weather is to wear a winter riding suit. These lightweight, insulated suits worn over your street clothes provide the warmth needed to prevent hypothermia. Another option available to motorcyclists is an electrically warmed suit or vest. These items can be quite effective.

Regardless of temperature, wearing proper protective riding gear, including a long-sleeved top and long pants, will reduce your chances of becoming dehydrated.

The gear you wear when riding can also serve to make you more visible in traffic. Choose brightly colored gear when possible. Only two riders of the 900 crash cases studied by "The Hurt Report" were wearing brightly colored clothing. If you wear dark clothing, retro-reflective vests may be worn over your jacket. Also, it is a good idea to affix reflectorized tape striping to the gear you wear regularly when riding. Jackets made with retroreflective material also will help make you more visible at night.

Finally, there are gear enhancements available for even more crash protection such as body armor, spine protectors and kidney belts. These may be single items you wear under your gear, or they may be built into the protective gear you buy.

### Rain Suits

For the avid motorcycle rider, a rain suit or waterproof riding suit is a must. A dry motorcyclist will be much more comfortable and alert than a rider who is wet and cold.

One- or two-piece styles are available in a variety of materials and colors, the most common being polyvinyl chloride (PVC) and nylon. High-visibility orange or yellow are good color choices.

There are usually only small differences in rain suit styles. The pants should have elastic at the waist and stirrups (or tie-strings) on the legs to wrap around the rider's boots. The jacket should have a high collar that is held closed by a snap or adjustable hook-and-loop fastener. The front zips up and a wide flap fastens across the opening. The wrist openings fit snugly with more elastic.

Also consider purchasing glove and boot covers. Most glove covers



**One-Piece Rain Suit**

**Two-Piece Rain Suit**

are large enough to fit over gauntlet type gloves without interfering with hand flexibility. The boot covers have tie-strings on top and should be worn under the pants.

### Hearing Protection

Long-term exposure to engine and wind noise can cause permanent hearing damage, even if you have a quiet motorcycle and wear a full-face helmet. Whether you choose disposable foam plugs or reusable custom-molded devices, properly worn hearing protection reduces noise, while allowing you to hear important sounds like car horns and sirens. Make sure you follow your state's laws when using hearing protection.

For more information on the importance of protective gear and for answers to other motorcycle safety-related questions, visit [msf-usa.org](http://msf-usa.org).

The Motorcycle Safety Foundation is a national, not-for-profit organization promoting the safety of motorcyclists with programs in rider training, operator licensing and public information. For the Basic or Experienced *RiderCourse*<sup>SM</sup> nearest you, call the national toll-free telephone number: (800) 446-9227. The MSF is sponsored by the U.S. distributors and manufacturers of BMW, BRP, Harley-Davidson, Honda, Kawasaki, KTM, Piaggio, Suzuki, Triumph, Victory, and Yamaha motorcycles.



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## Cycle Safety Information

# Personal Protective Gear

### For the Motorcyclist

One of the things that makes motorcycling enjoyable is the freedom of riding in the open air. Unlike car drivers surrounded by a steel compartment, motorcycle riders feel as if they are a part of everything around them. Of course, sometimes being out there can have its drawbacks, such as when you are riding in extremely hot or cold weather, when it's raining, when insects are pelting you, or when debris flies up at you. It's for these types of situations, and possible encounters between you and the asphalt, that protective gear was developed.

Protective gear has two basic purposes: comfort and protection. Uncomfortable gear can distract you from riding. Properly fitting protective gear will help you stay comfortable when encountering various riding conditions. In the event of a crash, protective gear will help prevent or reduce injuries. Here is a summary of some of the important gear needed for comfort and protection.

### Helmets

The most important piece of protective gear you can wear is a helmet manufactured to comply with DOT standards (FMVSS 218). This was emphasized in the University of Southern California (USC) researcher Harry Hurt's federally funded study, "Motorcycle Accident Cause Factors and Identification of Countermeasures," also called simply "The Hurt Report." Essentially, an in-depth on-scene investigation was

performed detailing the use of helmets and protective gear in 900 motorcycle crashes.

Additionally, researchers analyzed 3,600 police reports of on-highway motorcycle crashes. This and other research has established that helmets save lives by reducing the occurrence of head injuries, and wearing a helmet does not reduce essential vision or hearing.

This well-accepted motorcycle safety study's report has been corroborated since that time in many other research studies. Among them are: "The Snell Memorial Foundation – Past and Present" by Edward Becker; "Traumatic Brain Injury Associated with Motorcycle Crashes in Wisconsin, 1991-1997" by Wayne Bigelow; "Evaluation of Motorcycle Helmet Law Repeal in Arkansas and Texas" by Linda Cosgrove; "How Do Motorcycle Helmets Affect Vision and Hearing" by Scott McKnight; "Autopsy Study of Motorcycle Fatalities: The Effect of the 1992 Maryland Helmet Use Law" by Kimberly Mitchell; "Modernization of the DOT Motorcycle Helmet Standard" by David Thom; and "Motorcycle Helmet Effect on a Per-Crash Basis in the Thailand and Hurt Studies" by James Ouellet and Vira Kasantikul. Copies of these studies may be obtained online from MSF by visiting [msf-usa.org](http://msf-usa.org).



Helmets help protect your head in four ways. First and second, the outer **shell** resists penetration and abrasion. Third, inside the shell is the equally important **impact-absorbing liner** that absorbs more of the shock by slowly collapsing under impact. Fourth, the soft **foam-and-cloth liner** next to your head helps keep you comfortable and the helmet fitting snugly. The **retention system**, or chinstrap, is the one piece that keeps the helmet on your head in the event of a crash. Both shell and liner spread the forces of impact throughout the helmet material. That's why, in most cases, if a helmet has been damaged in a crash, it will not be protective in another mishap and should be replaced.

Consider how a full-face helmet makes riding more comfortable. It cuts down on wind noise in your ears and windblast on your face and eyes. It deflects bugs and other objects that fly through the air. A helmet even adds protection from inclement weather and reduces rider fatigue.

For more information on helmets, download the Motorcycle Safety Foundation's Cycle Safety Information publication, "What You Should Know About Motorcycle Helmets." It outlines helmet standards, construction, care and other important information.

### Face Protection

Any motorcyclist who has been hit in the face by a stone or an insect can tell you about the benefits of face protection. Windshields and most prescription eyeglasses simply do not provide adequate protection. Wind, insects and pebbles may be blown behind a windshield. Eyeglasses with shatterproof lenses may protect the eyes, but most don't seal out wind which makes your eyes water.

"The Hurt Report" states that motorcycle riders with shields covering their faces suffered fewer facial injuries than those without. It also reports that helmets providing full-face coverage with strong chin pieces and energy-absorbing liners are especially effective in reducing face injuries.

### Face Shields

Face shields come in a variety of designs to fit most any helmet. Some flip up for convenience. There are non-flip types, such as the flat shield, that snap directly to the helmet. If you select a bubble shield (either a flip-up or a snap-on style) make sure that its compound curves do not distort your vision.

When using a face shield, be sure it is securely fastened to the helmet. It should be impact-resistant and free from scratches. Scratches can refract light and blur vision.

Tinted shields help avoid eye fatigue during daylight hours, but always wear a clear one at night. Make sure the shield you choose is designed for your helmet and does not interfere with any eyeglasses you may wear.

Face shields may be cleaned with a mild solution of soap and warm water or a quality plastic cleaner.

### Goggles

Riders wearing goggles receive eye protection, but they are not protected from possible injury to other parts of the face. As has been emphasized before, full-face helmets and face shields provide better protection for the entire face.

Goggles should be securely fastened over the helmet so they do not blow off. Most frames have a rubber/cotton-fiber strap that resists tearing and stretching.

Maintain your goggles properly: dirty goggles can impede safe sight.

Whether you wear a face shield or goggles, tinted lenses may be used during the day, but you should use clear lenses at night.

### Footwear

Sturdy, over-the-ankle boots can protect you from a variety of riding hazards. They protect against burns from hot exhaust pipes and impacts from flying road debris. Boots with oil-resistant, rubber-based composite soles will give you a strong grip on the pavement and help you keep your feet on the pegs. If the boots have heels, they should be low and wide. In case of a crash, boots help provide valuable protection against foot and ankle injuries.



### Gloves

Full-fingered motorcycle gloves protect hands from blisters, wind, sun and cold and will help prevent cuts, bruises and abrasions in a crash.

Gloves that fit properly will improve your grip on the handlebars. If your gloves are too loose or bulky, you may have problems operating the controls of your motorcycle. If they are too tight, circulation will be restricted and your hands will become cold. Seamless gloves or gloves with external seams will help prevent blisters. Gauntlets will keep cold air from going up your sleeves.

Motorcycle gloves are available in many styles, weights and thicknesses. Lightweight gloves may be more comfortable in summer warmth while heavier, lined and/or insulated gloves are available for additional protection from winter cold.

### Jackets, Pants, Riding Suits

Protective gear will help you stay comfortable while riding in adverse conditions. In a crash, proper riding gear will help prevent or reduce injury. "The Hurt Report" states that covering the body with leather or an abrasion-resistant fabric (e.g., Cordura®, Kevlar® or ballistic nylon) also provides a high level of injury protection.

Protective apparel designed specifically for motorcycling will afford the best combination of comfort and protection. These garments are cut longer in the sleeves and legs, and fuller across the shoulders to

### Basic Riding Gear

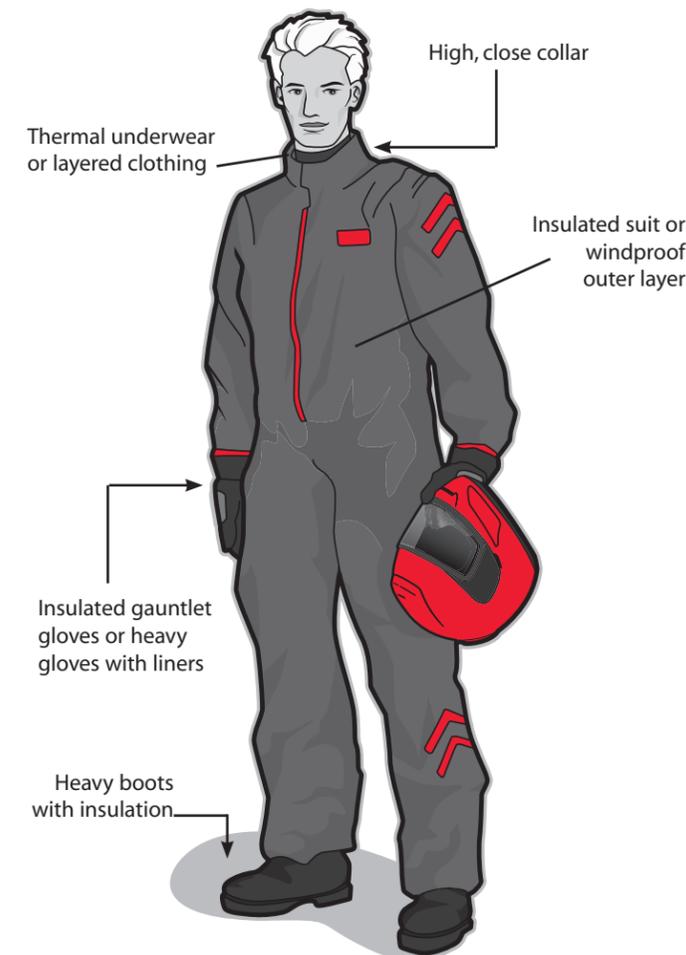


accommodate your riding posture. Special overlaps and flaps help seal out the wind and padding helps protect you in a crash.

Motorcyclists often wear leather because it is durable and abrasion-resistant, giving good protections against injury. Many modern fabrics, such as Cordura® and ballistic nylon, are also abrasion- or wind-resistant, waterproof or have high-visibility properties. Many



### Cold Weather Gear



motorcycle dealers carry a varied line of riding jackets and suits. Your riding habits, budget and local weather conditions will influence your choice of purchase. Shop wisely, making sure your purchase fits properly and is specifically made for motorcycling.

Your gear should fit comfortably without binding. However, wide-flared pants, flowing scarves and similar items should be avoided because they could become entangled in the motorcycle. A jacket with a zippered front will be more wind-resistant than a jacket with buttons or snaps. A flap of material over the zipper of a jacket gives additional protection against the wind. Jackets with sleeves tapering to fitted cuffs and waists are recommended to help keep wind from blowing into the garment. Be careful about collar style—a large, loose collar will flap when riding and may irritate your skin or distract you.

Remember that even in relatively warm weather, moving air is cooler and constant exposure to wind when riding may cause a chilling effect that leads to hypothermia. Hypothermia is a condition of subnormal body temperature that can cause loss of concentration, slowed reactions, and loss of smooth, precise muscle movement. You may lose your ability to concentrate and react to changing traffic conditions. Proper riding gear, such as a windproof jacket and insulated layers of clothing, is essential.

Riding gear that is just right for cold-weather riding may be too hot once you stop. Dress in layers so that the outer clothing may be removed as necessary.