

## SeasonedRider Fact Sheet

Some crash analysis studies indicate that as the median age for motorcyclists increased in recent years, the rate of involvement in traffic incidents also increased. According to the National Center for Statistics and Analysis (NCSA) of the National Highway Traffic Safety Administration (NHTSA), fatality rates for riders over 49 years of age increased more than the rates for younger riders.

This SeasonedRider Module Fact Sheet provides key factors that illuminate the effects of aging on motorcycle operation and motorcycle safety. It is provided in conjunction with the Motorcycle Safety Foundation Rider Education and Training System<sup>SM</sup> (MSF RETS), and may be useful in other courses and training opportunities such as the MSF Basic *RiderCourse*<sup>SM</sup> and the ERC Suite Skills Plus *RiderCourse*.

### General Facts

The following data and information was gleaned from reputable sources and applies to operators of motor vehicles in general. Where applicable, motorcycle-specific information is provided.

1. There are more than 18.9 million licensed drivers in the U.S. who are 70 or older. By 2020, it is estimated there will be more than 30 million licensed drivers age 70-plus.
2. One of every three drivers in America is now over 55 years of age. The typical U.S. motorcycle owner is about 41 years old compared with 24 years old in 1980.
3. The primary traffic violation committed by drivers aged 50 and over is “failure to observe the right-of-way.”
4. Another common traffic violation committed by drivers aged 50 and over is “improper left turn.”
5. The effects of aging occur gradually over time and deterioration may not be noticed.
6. About 20 percent of people age 55 and 30 percent of those over age 65 are hearing impaired.
7. Relatively few deaths of elderly people, 75 years of age and older, involve motor vehicles; but they have higher rates of fatal crashes per mile than younger drivers.
8. Recent data show that of the more than 57,000 drivers involved in fatal crashes annually, more than 10,000 of those were over 55 years of age.
9. The U.S. Food and Drug Administration reported that about 50 percent of all medications that older persons take could interact with alcohol. Combining medications and alcohol may cause serious adverse reactions and risky behaviors.

10. Countermeasures that have proven beneficial in reducing the more risky aspects of aging include physical therapy, perceptual therapy, driver education, and modern highway and vehicle engineering.

## **Rider Functions**

Motorcycle operation, as with the operation of any motor vehicle, is a task that involves visual and perceptual functions, cognitive and attention capabilities, and motor skill responses. These human functions are addressed in the MSF RETS with the acronym of S.E.E., which means Search, Evaluate, and Execute. S.E.E. is a dynamic decision-making process with overlapping functions for maintaining a safety margin. A rider must search for potential crash factors, evaluate the level of risk, and execute a smooth, controlled response in avoiding emergencies. Here are some specific effects and recommendations related to the aging process and S.E.E. that are applicable to seasoned riders.

### **Search**

1. Visual clarity diminishes. This phenomenon is gradual and typically begins between the ages of 40-50. Having a periodic eye exam is a wise choice. Visual acuity declines modestly beyond age 60, as measured by high-contrast acuity charts.
2. Night vision is especially diminished. The eyes gather less light as a person ages making it more difficult to see clearly at night. On average, the older person requires four times more light than the younger person.
3. Peripheral vision diminishes. As visual acuity diminishes over the years, the side or peripheral vision becomes blurrier also.
4. Hearing diminishes. Although most input for decisions in traffic are perceived through the eyes, a rider shouldn't discount the value of hearing traffic sounds or motorcycle sounds that could indicate a mechanical problem.
5. Eyes are more sensitive to light. The rods and cones in the eyes become more sensitive over time, which makes adjusting to light sources more difficult. This is particularly true when responding to glare or oncoming headlights.
6. Eyes take longer to adjust from near to far objects and vice versa. The muscles of the eyes become less responsive over time and take longer to adjust to changes in the environment as well as changes when moving focal points between far and near.
7. Eyes take longer to adjust to dark. The weakened eyes muscles cause the eyes to dilate less quickly.
8. Depth perception diminishes. This may affect judging appropriate gap selection when passing another vehicle and when crossing or turning at an intersection.
9. Street and directional signs are more difficult to read. Difficulty in early sign recognition may increase the chance of input overload, which occurs when there is more going on in traffic than may be accurately perceived or processed.

## **Evaluate**

1. Medications affect performance and behavior. Labels should always be read and a medical doctor's advice should be followed.
2. Complicated signage may be confusing. There are many situations, especially in unfamiliar areas, where a rider must contend with several points of information simultaneously. Often times older riders will need more time to process the information.
3. Space and distance are misjudged more frequently. Most riding decisions are based on input from visual processes. Any deterioration of visual functions will result in potentially misjudging elements of space and distance.
4. Awareness of impending risk is delayed. Eye muscles and body muscles react more slowly, resulting in delayed response time.
5. It may take fewer factors to interact to form a potential conflict. Crashes are typically caused by an interaction of factors. The number of road and traffic factors a rider may handle at any given moment varies, but aging may lower the number of simultaneous risk factors that a rider may be able to respond to safely.

## **Execute**

1. Muscles are weaker. Muscle tone and strength deteriorate as a rider ages. Without weight training a person loses 6-10 percent muscle mass per decade starting at age 30.
2. Endurance is diminished. Oxygen is not utilized as efficiently and the muscles lose their elasticity.
3. Reaction time slows. Responding to factors may require more time and space because correct actions require perception, evaluation, and motor response (muscle) time. Reacting to a hazard may take twice as long for a rider who has moved into middle age (40 to 54 years of age), and up to three or four times longer after age 55 or so.
4. Control sensitivity lessens. The feeling of the road through the tires and handlebars lessens, as well as the feedback that occurs in cornering and braking. This may have serious implications in crash-avoidance maneuvers.

## **Recommendations**

Below are some riding tips and considerations that should be taken into account by motorcyclists. Although these practices may be appropriate for riders of any age, they are particularly valuable for riders who are reaching their more mature years.

### **Riding Tips**

1. Keep a greater following distance, perhaps three seconds or more. Some authorities recommend up to a six-second interval.
2. Avoid complicated and congested roads and intersections. "Input overload" is a phrase often used to describe the presence of too much information to be able to

- process accurately. A good choice is to pick a route that contains less complicated roadways with less traffic flow and fewer turns.
3. Allow larger gaps when moving into a stream of traffic. Selecting a safe gap when passing another vehicle or crossing or turning at an intersection is an important decision for smoothly blending with others.
  4. Make a point to check side-to-side at intersections. It is a wise motorcyclist that recognizes that eye movement and muscle movement (head and neck muscles in particular) become more difficult with age. A rider should take an extra moment to double-check cross traffic to get a good look.
  5. Keep making good blind-spot checks. Traffic research shows that older drivers don't check blind spots as well as younger drivers. An extra moment to ensure nothing is hiding in a blind spot may help reduce risk.
  6. Have a passenger help you S.E.E. Passengers can be an additional set of eyes to help identify hazards and assess risk.
  7. Keep windshield, helmet face shield and eyeglass lenses clean. Dirt and grime on a rider's "window to the world" may adversely affect quick and accurate perception of factors such as traffic control devices, road markings, debris and other traffic movement.
  8. Avoid tinted lenses at night. Any tint lessens the light available to the eyes and makes seeing well at night more difficult.
  9. Wear sunglasses when glare is a problem. During daytime glare, good polarized sunglasses may reduce the effects of glare significantly and make identifying a traffic hazard easier.
  10. Adjust mirrors to avoid glare from following vehicles. Sometimes a slight mirror adjustment may reduce the distracting effects of traffic behind you and still provide the perception necessary to identify hazards to the rear.
  11. Keep the headlight(s) clean and properly adjusted. During routine maintenance, be sure the headlight is aimed correctly. Refer to your owner's manual for adjustment information.
  12. Avoid glasses with wide frames or heavy temples. Eyeglasses or sunglasses may be constructed in a way that creates a blind spot. Be sure the frames do not inhibit side vision or create difficulty in seeing the entire field of vision.
  13. Avoid being in a hurry. It is unwise to make up for lost time by riding aggressively. Leaving a little early will result in a more relaxed, enjoyable ride and create an opportunity for choosing greater time and space safety margins.
  14. Remember that the average age of the driving population is increasing, and you are sharing the road with others who may be experiencing the effects of aging on their operation of a motor vehicle. Keeping a greater safety margin is a wise choice.

### **Motorcycle Choice**

15. Choose a motorcycle with large dials and easy-to-read symbols. Brightly illuminated gauges may be helpful for riding at night.
16. Choose a motorcycle that fits well and doesn't cause muscles to strain because of an unusual seating position or because the controls are difficult to operate. How a

motorcycle fits its rider may affect overall handling and performance at both low speeds and at higher speeds.

17. Follow manufacturer recommendations in the owner's manual. Good maintenance will keep your motorcycle operating like new.

### **Personal Responsibility**

18. Wear protective gear. The muscles and bones are more prone to injury and the time for healing is often extended for an older person. Using extra body armor may help mitigate injury should a fall occur.
19. Renew skills often by completing a Motorcycle Safety Foundation ERC Suite Skills Plus *RiderCourse*<sup>SM</sup>. The half-day of practice is always fun and helps keep riding skills fresh.
20. Enroll in the AARP Driver Safety Program. (AARP is the American Association of Retired Persons.) It is the nation's first and largest classroom driver improvement course specially designed for motorists age 50 and older. (It is eight hours in length and costs \$10. Insurance discounts may apply. Take the quiz on the AARP website at [www.aarp.org](http://www.aarp.org) under the topic of "Driver Safety.") Also, AAA offers a course for older drivers called "Safe Driving for Mature Operators" (contact a local AAA club for details) and the National Safety Council has a course titled "Coaching the Mature Driver" (call 800-621-7619 for information). See helpful resources below.
21. Separate alcohol and other impairing substances and conditions from riding. Over-the-counter and prescription medications could cause impairment. And don't forget the possibility of synergistic impairment that occurs when drugs are used in combination.

### **Physical Health and Fitness**

22. Have annual eye checkups. This is a good recommendation for anyone over the age of 35.
23. If 60 or older, be sure your eye doctor checks annually for cataracts, glaucoma, macular degeneration, diabetic retinopathy and other conditions associated with aging.
24. Have annual medical checkups. Being physically fit and in good health helps ensure the safest, most enjoyable ride possible.
25. Keep an exercise regimen to enhance flexibility, strength and endurance. Fitness is important at any age. Maintain good muscle tone and flexibility to improve the enjoyment of motorcycling.
26. Ask a significant other if they notice changes that might affect safety on a motorcycle. Motorcycle operation is a complicated perceptual-motor skill, meaning it is a skill of the eyes and mind as well as the hands and feet. Identifying deterioration or weaknesses in other areas of normal living that require perceptual-motor skill, whether in the workshop, in the yard, or in the kitchen, should be used as clues that operating a motorcycle safely could also be affected.

27. If/when the time comes to retire from motorcycling, buy a sporty convertible.

## **Resources**

The following Web sites provide further information about aging and its effects on motor vehicle operation. Many of these sites provide current facts and figures as well as interactive quizzes that may provide information to help you enjoy motorcycling to the fullest.

AAA Foundation for Traffic Safety

[www.seniordrivers.org](http://www.seniordrivers.org)

American Association of Retired Persons

[www.aarp.org/drive/](http://www.aarp.org/drive/)

American Foundation for the Blind

[www.afb.org](http://www.afb.org)

Discover Today's Motorcycling

[www.motorcycles.org](http://www.motorcycles.org)

Insurance Institute for Highway Safety

[www.iihs.org](http://www.iihs.org)

Motorcycle Safety Foundation

[www.msf-usa.org](http://www.msf-usa.org)

National Highway Traffic Safety Administration

[www.nhtsa.dot.gov](http://www.nhtsa.dot.gov)

National Safety Council

[www.nsc.org](http://www.nsc.org)