



Dr. Ray's Seasoned Rider eCourse

Week 2: Compensating for the effects of aging

Lesson 1 - Search

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 by MSF with the acronym of SEE, which means Search, Evaluate, and Execute. SEE 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 SEE that are applicable to seasoned riders.

- 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.
- 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.
- Peripheral vision diminishes. As visual acuity diminishes over the years, the side or peripheral vision becomes blurrier also.
- 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.
- 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.
- 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.
- Eyes take longer to adjust to dark. The weakened eyes muscles cause the eyes to dilate less quickly.
- Depth perception diminishes. This may affect judging appropriate gap selection when passing another vehicle and when crossing or turning at an intersection.
- 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.

Please watch Video 2.1, "Search"



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Lesson 2 - Evaluate

- Medications affect performance and behavior. Labels should always be read and a medical doctor's advice should be followed.
- 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.
- 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.
- Awareness of impending risk is delayed. Eye muscles and body muscles react more slowly, resulting in delayed response time.
- 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.

Please watch Video 2.2, "Evaluate"



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Lesson 3 - Execute

- 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.
- Endurance is diminished. Oxygen is not utilized as efficiently and the muscles lose their elasticity.
- 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.
- Control sensitivity lessens. The feeling of the road through the tires and handlebars is diminished, as well as the feedback that occurs in cornering and braking. This may have serious implications in crash-avoidance maneuvers.

Please watch Video 2.3, "Execute"