

Granny! Where is your Helmet?



Joan Somes PhD, RN-BC, CEN, CPEN, FAEN, NRP

Learning Outcomes:

1. Identify body systems that change with aging that are especially vulnerable when riding motorcycle, bicycle, or ATV.
2. Describe physiologic changes that affect driving and compensatory mechanisms in the injured older adult.
3. Outline strategies one could employ to help prevent serious injuries and deaths.

Faculty Disclosure Joan Somes PhD, RN-BC, CEN, CPEN, FAEN, NRP works part-time as critical care EMS educator for Regions Hospital, St. Paul, MN & independent consultant providing education for emergency nurses & pre-hospital providers. She has 49 years emergency nursing experience.



Commercial Support: None

Conflict of Interest: has a grant from MN DPS/OTS to increase older driver safety on MN roadways



Older adult Crash facts

- drivers
- motorcycles
- bicycles
- ATV's

Fatalities & injuries are increasing nationwide!

CDC's WISQARS™ (Web-based Injury Statistics Query and Reporting System) <https://www.cdc.gov/injury/wisqars/>

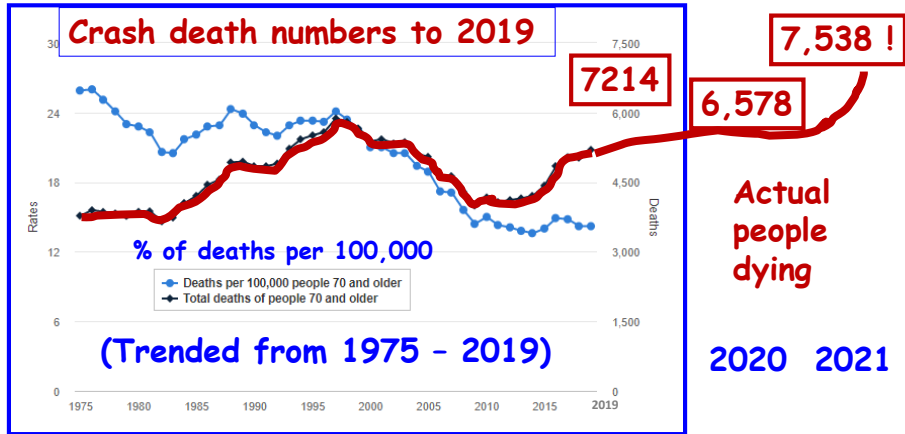
- Poisoning, falls, and MVC's leading causes of death in adults over age 55
- The 55+ motorcyclist age group accounted for 23% of fatalities in 2011, increasing to 27% in 2020 (a 37% over all increase)
- Bicycle deaths have increased 8% in 2022
- Fatality-risk increases to 96% if over 85 y.o. and in an unprotected crash



Based on 2020 CDC statistics, NHTSA crash stats and NSC info

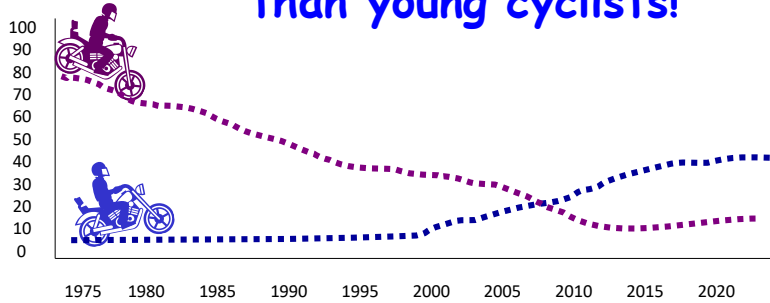
FYI: Cost to provide geriatric is 2.5 times that of the "younger" trauma patients!

Increasing number of people, 70 & older, are dying on our roads



<https://www.ihs.org/topics/fatality-statistics/detail/older-people>
 Early Estimates of Motor Vehicle Traffic Fatalities and Fatality Rate by Sub-Categories 2021 (dot.gov)

Older cyclists are dying more frequently than young cyclists!



1975 Motorcycle fatalities (riders age 50 +) ~ 3%
1997 ~ 14%
2020 ~ 36%

1975 Motorcycle fatalities (riders < age 29) ~ 80%
2020 ~ 26%

<http://www.ihs.org/ihs/topics/t/motorcycles/fatalityfacts/motorcycles> 2020 update

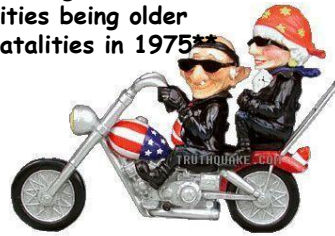
Injuries and fatalities related to:

Older adults on

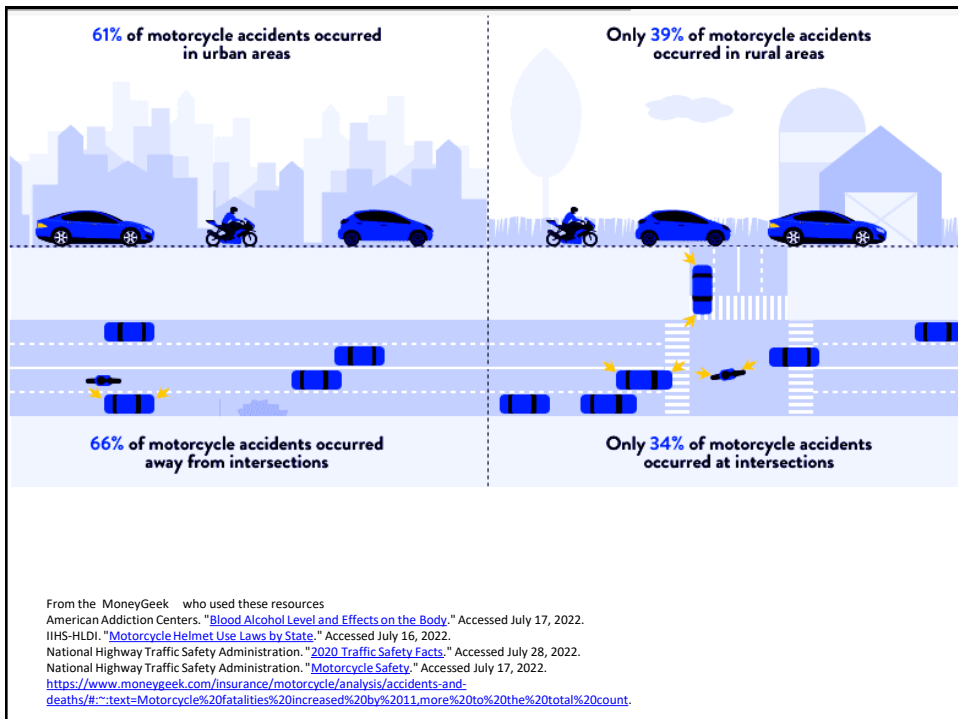
- **Motorcycles**
- **Bicycles**

In Minnesota in 2021* 69 people were killed riding a motorcycle, 998 were injured. 15 of the fatalities & 197 (175 males & 22 females) of the injured were > than 60. One was 85. 4 involved deer.

Nationally, 36% of motorcyclists that died were age 50 & older in 2020; compared to only 14 % of the fatalities being older than 50 in 1997, & only 3 % of motorcycle fatalities in 1975**



*2021 MN crash facts **2020 IIHS fatality facts



States with universal
helmet laws recorded
11% fatalities.

States without universal
helmet laws recorded
57% of motorcyclist
fatalities involved
un-helmeted drivers.



Motorcycle helmet
cover \$37.99 on ebay

<https://www.moneygeek.com/insurance/motorcycle/analysis/accidents-and-deaths/#motorcycle-crashes-overview>

Injuries and fatalities related to:

Older adults on

- Motorcycles
- Bicycles

In Minnesota in 2021*
6 of the 8 people killed
on a bicycle were over
age 60.

7 of the 54 serious
injuries due to a bike
crash were over age 60

Nationally, the largest number of bicycle fatalities was in the age 60-64 age group with 172, but age 60 - 85+ deaths totaled 489. One male was 85 y.o. Injuries: were > 52,200 in the 64+most were male

e was involved

2021 MN Crash Facts

Types of impact

Bicycle vs. car/light truck
Usually front of vehicle

84% - front vs. car
6% side vs. light truck

Bicycle vs. semi-truck/bus:
usually on right side

> 50% of crashes &
in 21% fatalities



Fault is shared

In 2021:

50% of the bicyclists
were cycling across
traffic prior to crash

Nearly half (35/68) of
the motorcycle crashes
did not involve another
vehicle



All Terrain Vehicles (ATV's):

In 2020 over 339 road-related deaths were reported. 86 in drivers age 50 and older.

Next highest was 13-19 year olds with 50 deaths



Based on 2020 data - IIHS HLDI

Crash data numbers related to older adults on motorcycles, bicycles, and ATV's show the number of injuries & fatalities are increasing nationwide!

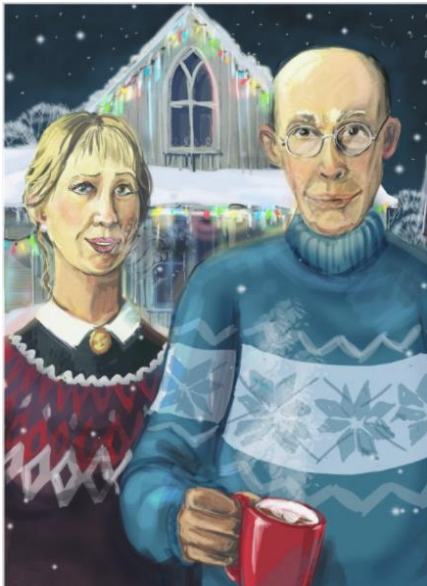
Why?!



CDC's WISQARS™ (Web-based Injury Statistics Query and Reporting System) <https://www.cdc.gov/injury/wisqars/>

We are all getting older, especially the baby-boomers!

- 13% were 65, or older in 2010
- 17% were 65, or older in 2020
- 19% will be 65, or older by 2030
- 65+ will more than double by 2040
- 85 and older will increase from 6.7M to 14.4 M in 2040



American winter by Julia Franteeva
a parody on Grant Wood's "American gothic"

Number of "older" drivers in America are increasing!

Number of US licensed drivers
65+ increased by about 14.4M
from 2008 to 2020
(32.2M in 2007 to 46.7M in 2020)*

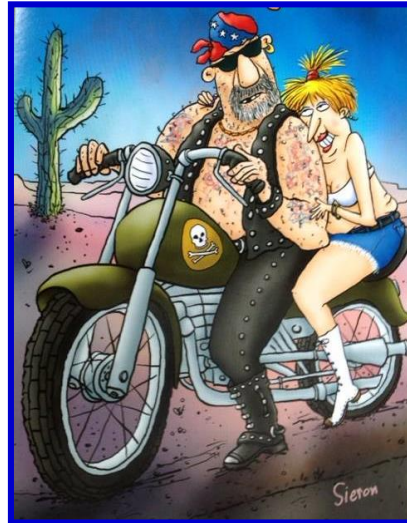
Drivers age 60-65 have
been deemed "older"!

But we are ALL
aging every day!

<https://www.fhwa.dot.gov/policyinformation/statistics/2020/pdf/dl220.pdf>

**Mile per mile -
motorcycle
deaths occur
29 times more
often than in
cars!**

2020 Motorcycles & ATVs IIHS HLDI Fatality Facts



**Over 80% of older adults take medications that
can affect driving, increasing risk by 41%**

- Pain medications
- Sleeping pills
- Seizure medications
- Muscle relaxers
- Anti-nausea medications
- Eye drops
- Blood pressure & heart medications

➤ **Any medication that can cause drowsiness, blurred vision, dizziness, relaxed muscles; including over the counter or herbal supplements!**

**Care providers or pharmacist can provide information
if medications can cause problems driving!**



Size does matter!

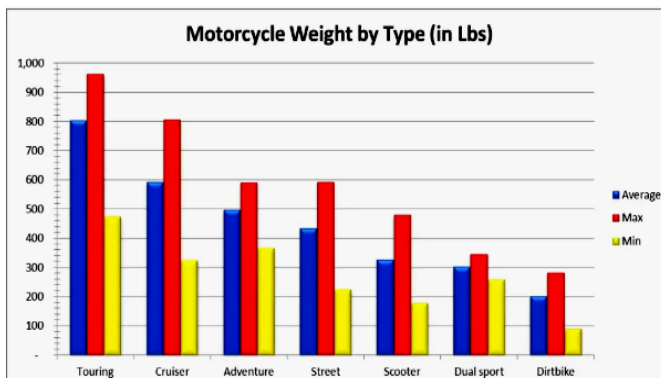
Cruiser/standard being driven at time of death ~ 82% of deaths "older driver"
 Touring bike involved ~ 94% "older drivers"

49% of deaths riding super sport & sport models by were those under 30



2020 data from iih's fatality facts 2020 motorcycles and ATV's

↑ Motorcycle Weight = ↑ Tip Risk



The average weight of any motorcycle is 430 lbs (195 kg).
 Lightest cycles are dirt bikes (average weight - 202 lbs).
 Heaviest bikes are touring motorcycles at 804+ lbs.
 Older drivers tend to buy touring & cruiser (heavier) cycles.



So much for statistics!
Let's look at why crashes are worse for the older adult

No such thing as a fender bender on a motorcycle, bicycle, ATV, or when walking!

A vehicle acts like metal body armor to protect the older adult. Without this protection, there is a higher risk of skin loss, broken bones, internal and head injuries. Complications can lead to death in several weeks to months. Or inability to be independent.



The older adult's body can be fragile;
It breaks & tears easily.
Doesn't compensate for injuries.
And doesn't heal easily.

We will cover this in
more detail today.



Any age driver may present with
"impaired" or "unsafe" driving
behaviors, however.....



Driving requires: Physical ability

- Strength & flexibility of neck, arms, & legs
- Ability to see, hear, & feel information
- An intact nervous system to send & receive messages between the brain, arms, and legs

Cognitive ability

- Ability to process sensory information
- Sort out distractions
- Respond in an appropriate & timely manner



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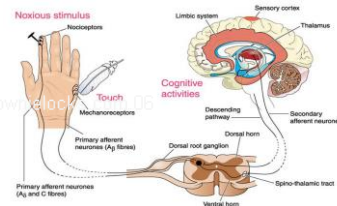
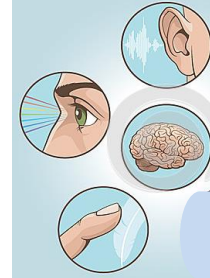
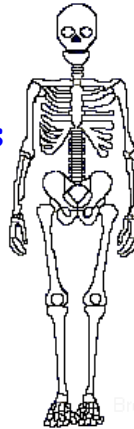
Cognitive ability

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The Body is Affected by Aging

- Muscle strength & flexibility
- The ability to sense feeling in feet/hands
- Eyes (vision) & ears (hearing)
- Brain's ability to process sensory information from eyes, ears, nerves
- Reaction time
- Pain with movement



Cognition - the ability to process information

(Sights - Sounds - Sensations - Situation)

Signs of cognitive slowing typically appears:

- age 65-74 ~ 2.4% of people
- age 75 - 84 ~ 11% of people
- > age 85 ~ 34-50% of people



COVID has added a new dimension to this!

Age related cognitive changes often have a slow onset and may include:



- “Freezing” when stressed
- Appearing (getting) lost easily
- Confusion, anxiety, anger when asked about abilities
- Searching for words/explanations
- Difficulty recalling names, etc.
- Unable to find things (keys, cars)
- In wrong places at wrong times
- Unable to use vehicle tech, or handle vehicle correctly

Many learn how to hide & compensate for these changes

How do these age-related changes affect driving?

- Easily distracted /overwhelmed by stimuli, high traffic situations
- **Difficulty judging distance and speed of other vehicles**
- Decreased ability to recognize unsafe situations
- Trouble reading street/road signs
- Issues with way-finding / getting lost



*Clinician's Guide to Assessing and Counseling Older Drivers, 4th Edition Alice Pomidor – editor New York, 2019 The American Geriatrics Society & NHTSA https://geriatricscareonline.org/FullText/B047/B047_VOL002_PART001_SEC004_1?p

Baby boomers & distracted driving

- Drivers 55+ were 8 sec. slower than Millennials responding to on screen in-vehicle technology*

More time required to:

- Look at the screen
- Read the message
- Process the information
- Respond to the info



<https://www.cbsnews.com/news/distracted-driving-study-aaa-older-drivers-distracted-longer-in-car-technology-infotainment-2019-07-25/>

*From a recent study in the Washington Post

Driving & Muscle Memory



- The more often, or longer, one does an action the more embedded into the "muscle" it becomes
- (Re)action is automatic & requires little to no thought, but is takes longer and is harder to do



Other changes seen:

- Lack of strength/flexibility to brake /accelerate
- *Not knowing* if foot is on gas or brake
- Difficulty turning head to check traffic
- Slower response in emergent braking situations
- Missing auditory/visual warnings about their driving



*Clinician's Guide to Assessing and Counseling Older Drivers, 4th Edition Alice Pomidor – editor New York, 2019 The American Geriatrics Society & NHTSA https://geriatricscareonline.org/FullText/B047/B047_VOL002_PART001_SEC004_1?p

Balance is even
more precarious
as we age!



Often there is a lack of strength to
correct once we start to fall

Physical and cognitive impairment
associated with aging
to driving errors
similar to those seen when
Same for riding a bicycle or ATV
is driving under the
influence of drugs or alcohol!



Hill, L., Rybar, J., Stowe, J., Jahns J. Development of a curriculum and roadside screening tool for Law enforcement identification of medical impairment in aging drivers (2016) Injury Epidemiology 3:13 DOI 10.1186/s40621-016-0078-3 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4858548/pdf/40621_2016_Article_78.pdf
North American Conference on Elderly Mobility Driver Screening and Assessment Collaboration Between Law Enforcement and Public Health Organizations: The Cognitive Assessment Tool (2019) https://safety.fhwa.dot.gov/older_users/noteworthy/ch2.cfm
Pomidor, A. ed: *Clinician's Guide to Assessing and Counseling Older Drivers, 4th Edition* 2019 New York

Aging-related conditions add to physical & cognitive changes

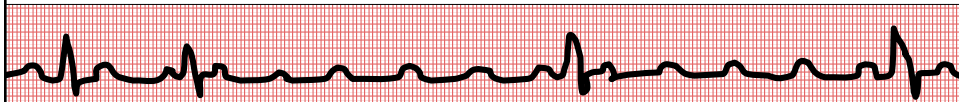
- Alzheimer's disease & dementia
- Stroke/ limb weakness
- Diabetes (neuropathies)
- Arthritis
- Parkinson's disease
- Heart/lung disease
- Glaucoma, macular degeneration, loss of peripheral / night vision



Sudden onset, or change in of any of these may result in a crash!

The symptoms of these conditions can lead to unsafe driving

- Irregular heart rhythm
- Low or high blood sugar
- Low oxygen level
- Low blood pressure
- Loss of/decreased sensation or movement in arms or legs
- Pain with joint movement
- Dizziness/altered mental status



Did we mention medications?



Unsafe driving behaviors that may be due to physical/cognitive impairment

- Driving on wrong side of road / weaving
- Nearly hitting pedestrians, cyclists, other cars
- Difficulty making left turns or getting into correct lane when turning
- Turning in front of, or failing to yield to oncoming traffic
- Inappropriate / delayed stops
- Driving too slow/fast
- Scratches/dents on garage door, mailbox, etc



Failure to yield & merging issues more frequently seen in older drivers

Contributing Factors	to Senior Drivers*	to Senior Drivers*	Other drivers
Human Factors			
Failure to Yield Right of Way	1,700	24.1%	888
Careless/Negligent/Erratic Driving	604	8.6%	671
Following Too Closely	584	8.3%	898
Improper Lane Usage	421	6.0%	188

Contributing factors in 12,698 crashes involving senior-drivers (age 65+) in 2016*

Difficulty seeing, hearing, judging distances/speed of other cars, slower ability to respond

Increased frailty ~ higher risk of injury/ death



© CanStockPhoto.com

*Minnesota Motor Vehicle Crash Facts, 2017

<https://www.leg.state.mn.us/docs/2018/mandated/181000.pdf>

↑ Frailty leads to increased deaths

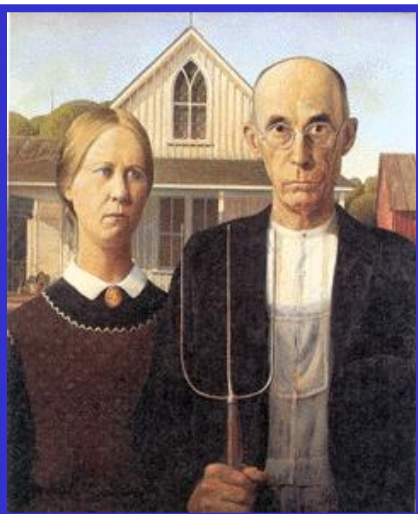
- Aging leads to physiological changes in the body making it less able to tolerate a crash and recover from injury
- Complications and underlying conditions often lead to death long after the crash



Changes in
older adults
that affect
how well they
tolerate crashing



Common physiological
changes seen with aging:



- Seeing, hearing, feeling
- Responding
- Communicating
- Breathing
- Circulating
- Thinking
- Eating/eliminating
- Healing/fighting infection

Changes in Vision

- Common causes of vision changes
 - macular degeneration
 - glaucoma
 - diabetes
 - cataracts
 - lid laxity
- Decreased tear production
- Decreased adaptation to dark
- Loss of accommodation (glare & accommodation problems)



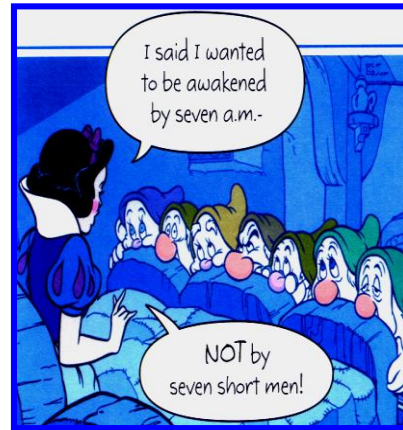
Changes in Hearing



- Hearing changes
 - loss of cochlear hair
 - cell function
 - loss of high frequency
 - sensitivity
 - reduction of ability to discern speech
- Other factors
 - ear wax
 - otosclerosis
 - ototoxic drugs
 - disease processes
 - noise exposure

Changes in Hearing

- Types of hearing loss
 - tinnitus
 - conductive
 - sensorineural
 - mixed
- Hearing loss starts with:
 - ↓ sensitivity & perception of high frequency sounds
 - ↓ localization leads to poor discrimination
- More issues with consonants than vowels.



Older adults have decreased:



- Blood flow to the brain decreases amount of oxygen & sugar
- Functioning neurons
- Short term memory
- Word finding ability

These lead to slower cognitive function



Slows with aging Cognitive function

Ability to:

- Process
- Organize
- Recall information

Reaction time

Coordination

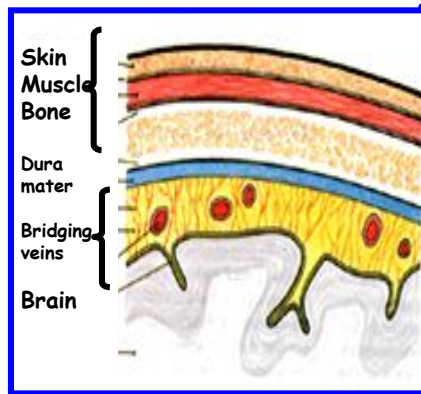
Speed of performance

Mental status changes may be due to:

- Change in surroundings?
- Change in care-givers?
- General confusion related to situation?
- Missing sensory devices (glasses, hearing aids, etc.)?
- Development of a medical condition?

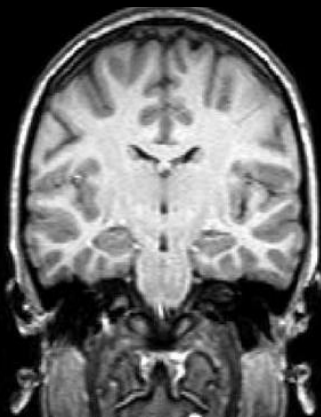


The good news / bad news of an Aging Brain

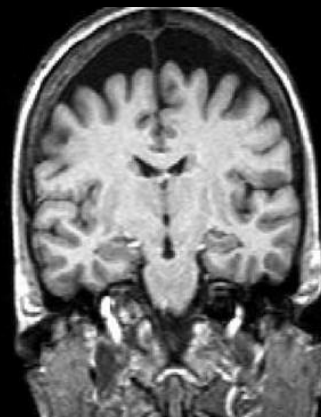


Atrophy leads to brain tissue shrinking
The "bridging veins" stretch and tear more easily
Increased risk of subdural hematomas, but they are tolerated due to increased room for blood to accumulate.

Young brain



Old brain with atrophy



We know sensory losses and weakness in extremities can contribute to slower response, but it is also hard to know if an area is injured as there may not be any pain. They may have old underlying medical conditions that hide the problem. Is this a new numbness, or is it different?



Changes in Responding

- Altered/absent sensory input
- Slower reaction time to recognize impending fall
- Often - by time information is obtained, processed, and reaction is planned (assuming the muscle & skeletal system is strong enough), the patient has already crashed





Aging & Breathing

- Often have history of smoking, or other pulmonary pathology - COPD, CHF, asbestosis, etc.
- Decreased pulmonary reserve & ability to breathe harder/faster
- The older adult tires out sooner & does not show signs of SOB

Frailty of the rib structure:

multiple rib fractures

flail chest

detached sternum

Lack of boney protection

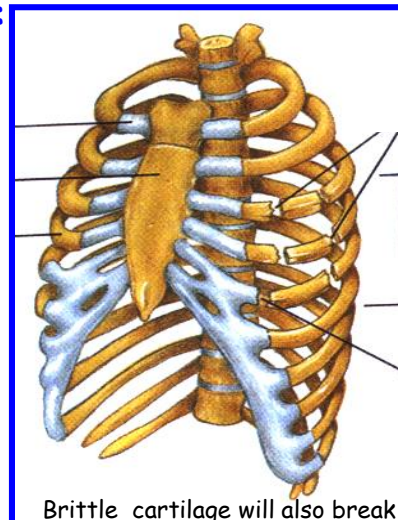
bruising of lung tissue

fluid leak into the alveoli

Fractures decrease ability

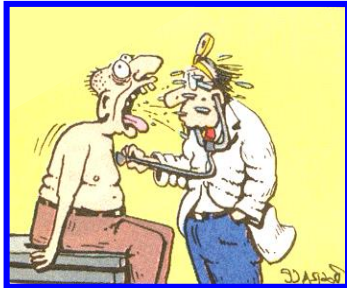
to move rib cage/improve

air exchange



Brittle cartilage will also break

Older lungs have decreased



- ciliary function
- mucus glands
- T-cell immunity
- cough reflex
- elastic recoil
- secretion clearance

Set up for pneumonias that lead to delayed death from sepsis or hypoxia or other organ failure

Breathing - Over all Response

- ↓ Ability to increase oxygenation
- ↓ Decreased hemoglobin to carry oxygen to cells
- ↑ Increased organ damage due to lack of oxygen to organs
- ↓ Response to stress, exercise, disease



Cardiovascular Considerations

- Heart has trouble beating harder, and often becomes irregular if heart goes faster
- Blood vessels can't constrict due to atherosclerosis
- Often dehydrated (less fluid / blood amount in body)



Increased susceptibility to blood loss, & unable to compensate for it!

- Decreased fat (stores water)
- Decreased kidney function & ability to save water
- Decreased thirst drive
- Diuretics make it worse



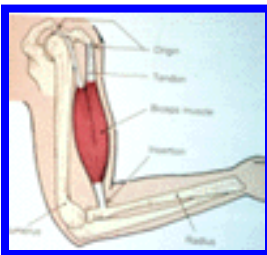
Bones & Aging

- Osteoporosis leads to decreased bone density. Very little force needed to cause fractures
- Hard to read X-rays
- Poor calcium absorption affects new bone growth

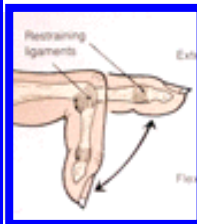
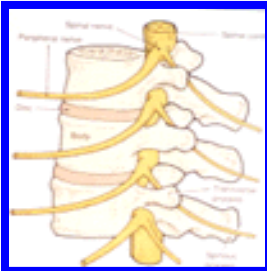


Lumbar spine with osteoporosis
(note calcified aorta)

Effects of Aging on Joints & Muscles



- Muscle cells replaced with fat
- Arthritis
- Joint cartilage atrophy
- Disc's dehydrate



**Decreased strength,
flexibility, & mobility!**

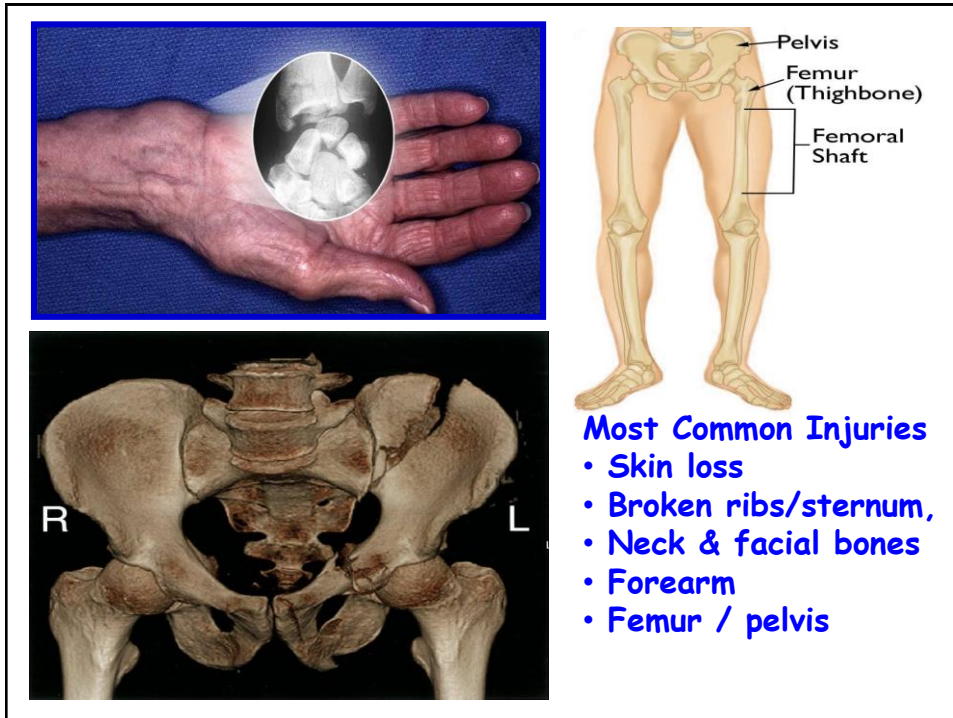
The spirit (cognitive response) may be willing, but the flesh may be weak.



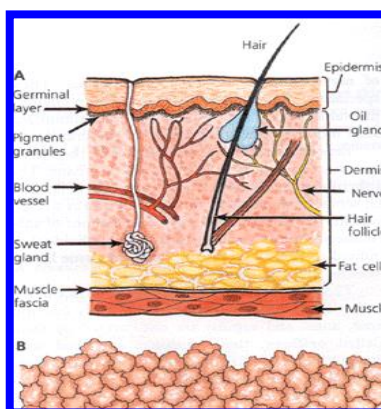
- Less flexible joints
- Challenges maintaining balance
- Decreased muscle strength, esp. in the upper body
- Bones joints "give" leading to falls



- Bone become brittle & break more easily in older patients
- Ligaments pull small boney fragments from bone
- Muscles & ligaments can rupture



Aging Skin and Connecting Tissue



- Skin loses elasticity & subcutaneous fat
- Bigger bruises 2° to
- Epidermis thins/flattens increasing permeability
- Tears easily
- Less barrier protection
- Decreased sweat gland activity



When thrown from a "bike" - there is an impact - just like when two cars crash. Here it is the body hitting something that does not move. Skin can be scraped off the body, bones jammed, & the person even crushed under the bike



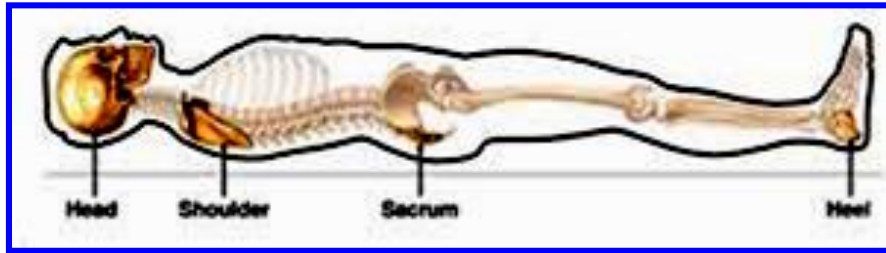


- Decreased blood flow to skin
- Poor circulation bringing building materials & removing waste products
- Takes longer to heal*
- Infects more easily*

* Impact each other & increases delayed death risk



- Decreased subcutaneous tissue over joint and bony prominences are high risk
- Skin breakdown by ears, nostrils, and other thin skinned areas from medical equipment (oxygen tubing, splints, braces, backboards, etc)



Common pressure points that develop redness in as little as 20 minutes.

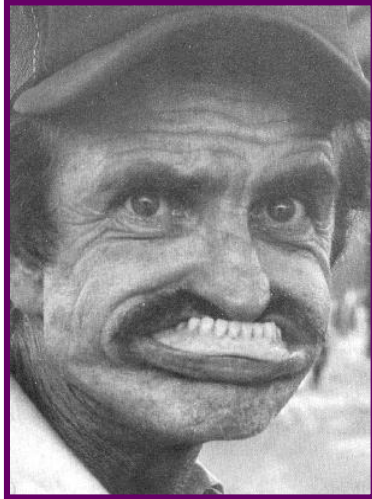
Skin breakdown on toe-tips, elbows from boards and sheets, chins & back of head from cervical collars.

Aging & Response to Stressors



- Trauma - ↓ clotting (liver & med related), ability to carry O₂, fluid reserve, ability to stay warm (affects clotting)
- Infections - ↓ anti-viral & white cell response
- Often not up to date with immunizations
- Healing - ↓ circulation, edema, nutrition

Changes in body repairing ability



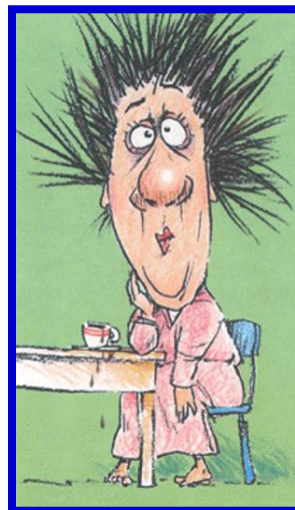
Nutrition

- ↓ Ability to afford
- ↓ Quality of food
- ↓ Desire to eat
- ↓ Ability to chew
- ↓ GI transit time & absorption

Other issues when older adults crash

They may be on medications that prevent:

- Blood vessels constricting that might have stop bleeding
- Retaining fluid that might have helped shock
- Increased heart rate that might have helped shock
- Clotting that might have stopped bleeding



"Blood Thinners", Shock, & Head Trauma

• Anti-coagulants

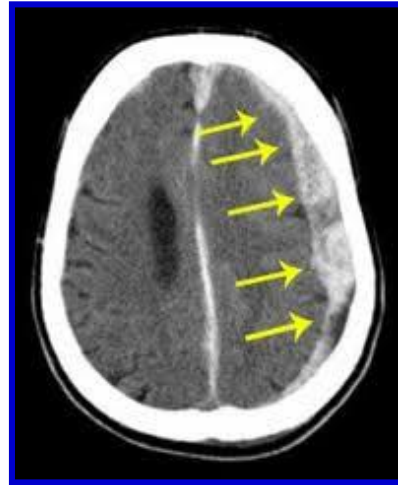
Warfarin (Coumadin/Jantoven)
Lovenox (LMWH)
Pradaxa (Dabigatran)
Xarelto (rivaroxaban)
Arixtra (fondaparinux)
Eliquis (apixaban)
Fragmin (Dalteperin)

• Anti-platelets

Aspirin
Plavix (clopidogrel)
Persantine/Aggrenox (dipyridamole & with ASA)
Pletal (cilostazole)
Ticlid (ticlopidine)
Brilinta (ticagrelor)
Effient (prasugrel)

• Herbals

Ginkgo, Garlic, Ginseng, Ginger, St. John's
Wort- just to name a few!



Older Adult Trauma

- Not always a major crash
- Often can't stop it happening
- Problems compensating
- Secondary injuries
- Underlying medical issues compound trauma issues



Physiologic changes in the older adult:

- Contribute to/cause the injury
- Lead to delayed onset symptoms
- Mask/confound symptoms
- Decrease ability to compensate
- Lead to longer healing times
- Often culminate in death



From: [The Goat Lady](#) by Jane Bregoli

Normal Aging Messes With Trauma Care

Gathering data,
Carrying out assessments,
Sorting information into
"new, old, changing".

Routine care protocols can
lead to further stress on aging body systems!



Don't forget to find out "Why?"

- On purpose?
- Distracted?
- Couldn't see / hear / limited recognition of potential injury?
- Unsafe behavior?
- Lack of safety equipment?



Common delayed-onset issues

- Skin breakdown
- Decreased oxygenation that can cause a stroke heart attack, organ and tissue death
- Blood loss
- Sludge in vessels
blood clots in the legs, to the heart, the lungs, or the brain
- Delayed healing
- Loss of independence



Ensure safety upon discharge

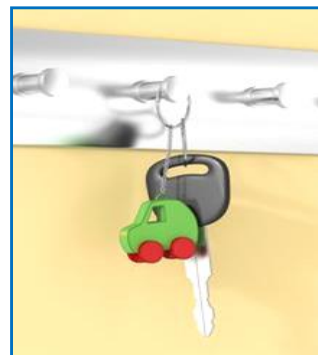
Injuries affect mobility

- Decreased ability to:
 - maintain control of mobility devices
 - move quickly
 - identify & respond to environmental hazards
- At risk for additional falls



Many drivers decide to retire from driving about age 75 due to self-recognized:

- ↓ vision
- ↓ strength & mobility
- ↓ cognition
- ↑ medical conditions
- ↑ medications that affect driving



**However - we all age & accept aging differently, some better than others!
And what if they don't, won't can't?**

Objectively
"measuring"
the driver's
cognitive
ability

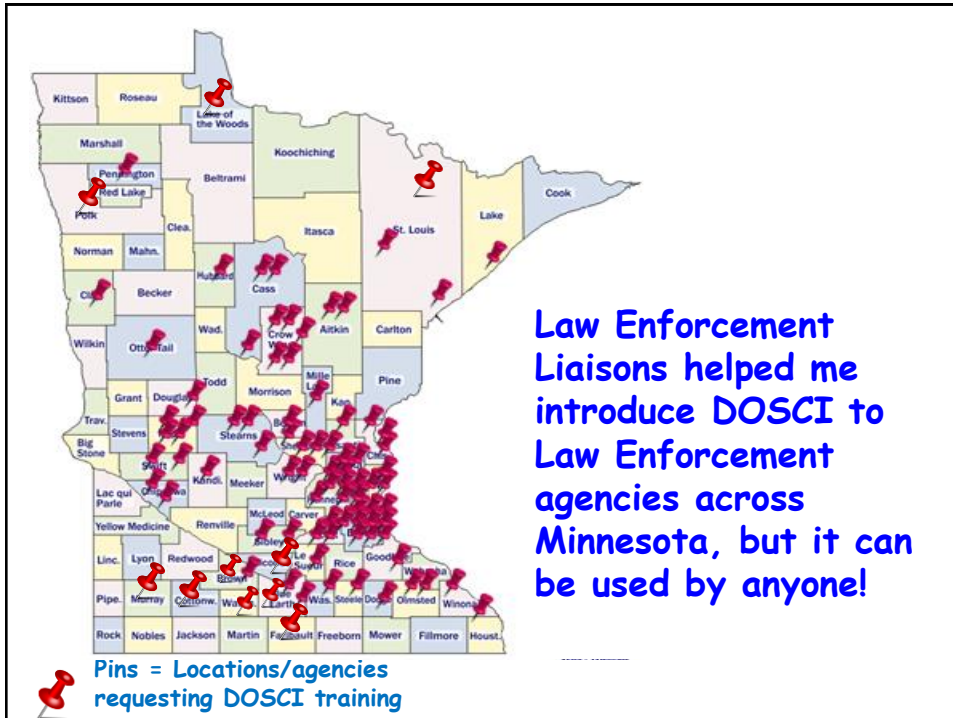


DOSCI adjusted for Minnesota*

- DOSCI maybe be used for any age pedestrian, bicyclist, or motorist.
- Questions do not need to be asked in order & may be worked into the conversation.
- **All 9 questions must be asked to create a score.**
- Each answer is 1 point.
- The 3 "bonus" questions provide additional helpful information about the driver's cognition.

DOSCI DRIVER ORIENTATION SCREEN FOR COGNITIVE IMPAIRMENT	
<small>RULE OUT INTOXICATION AND URGENT MEDICAL CONDITIONS</small>	
<small>ASK ALL 9 QUESTIONS – GIVE ONE POINT FOR EACH INCORRECT RESPONSE</small>	
<ol style="list-style-type: none"> 1. What is your date of birth 2. What is your full home address 3. What state are we in now? 4. What city/town are we in now? 5. Without looking at your watch, can you estimate what time it is now? (Answer provided must be plus or minus one hour of correct time) 6. What day of the week is it? 7 – 9. What is today's date? <ul style="list-style-type: none"> • Month • Day • Year 	
<p><small>5 OR MORE INCORRECT: Unsafe to drive today ; refer to department procedures for alternative transportation and vehicle removal Submit <u>Request for Examination of Driver</u>.</small></p> <p><small>3-4 INCORRECT: Potentially unsafe to drive today; consider totality of circumstances/need for re-exam</small></p> <p><small>0-2 INCORRECT: Based on totality of circumstances. Does not need referral for examination based on cognition</small></p>	
<p><small>Additional questions to determine orientation</small></p> <ol style="list-style-type: none"> 1. Where are you coming from and where are you going? 2. Will you please spell your name? 3. Do you have an emergency contact? What is their name and phone number? 	
<small>Used, and adjusted with permission TRECIS and University of California, San Diego</small>	

*From the Driver Orientation Screen for Cognitive Impairment – DOSCI developed by Univ. of CA – San Diego used and adjusted with permission because Minnesota does not have a "priority" re-exam and to incorporate Minnesota related resources



The Questions

Rule out: INTOXICATION AND URGENT MEDICAL CONDITIONS

ASK ALL 9 QUESTIONS -

GIVE ONE POINT FOR EACH INCORRECT RESPONSE

1. What is your date of birth
2. What is your full home address
3. What state are we in now?
4. What city/town are we in now?
5. Without looking at your watch, can you estimate what time it is now? (Answer provided must be plus or minus one hour of correct time)
6. What day of the week is it?
- 7 - 9. What is today's date?
 - Month · Day · Year
 - Prompt for month, day, & year if needed

Bonus points - spell name, where going to/coming from, phone number of family

*From the Driver Orientation Screen for Cognitive Impairment - DOSCI developed by Univ. of CA - San Diego

What do the DOSCI scores mean?

Answers all but one or two questions correctly = cognitively intact.

Driver should be able to absorb road information, follow the rules of road, make good decisions, & drive in safe manner.



*Hill, L. Law Enforcement's Role in Older Driver Safety - Instructor Manual. University of California San Diego (instructor training in May 2019)

What do the DOSCI scores mean?

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3-4 answers wrong = may be slightly confused.

May be having trouble interpreting or processing what is being said, asked, or traffic information.

May be situational, driving now is probably unsafe!



*Hill, L. Law Enforcement's Role in Older Driver Safety - Instructor Manual. University of California San Diego (instructor training in May 2019)

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3-4 answers wrong = may be slightly confused.

May be having trouble interpreting or processing what is being said, asked, or traffic information.

May be situational, driving now is probably unsafe!

5 or more answers wrong = highly confused and this is most likely not new. Driver will likely have difficulty controlling the vehicle, following roadway information, responding to traffic threats, may end up lost/dead.

It is best for all if they don't drive at this time & recommend completion of Request for Examination of Driver Form.



*Hill, L. Law Enforcement's Role in Older Driver Safety - Instructor Manual. University of California San Diego (instructor training in May 2019)

Instructions to end-users

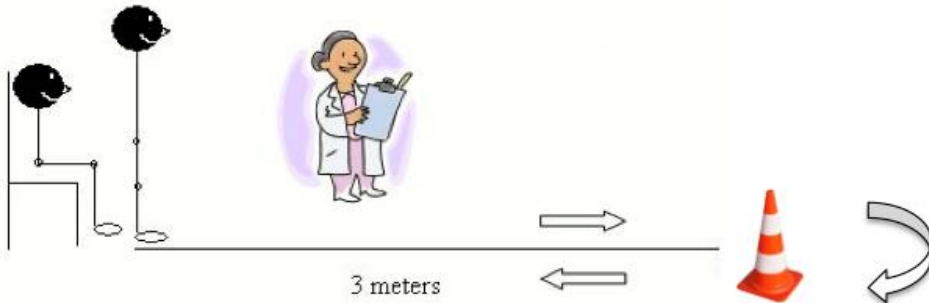
If unable to answer most DOSCI screening questions - also unlikely to process information to safely drive a vehicle (or remember how to get home!)*

Identify alternative method of getting driver home (call family, EMS, or follow departmental procedure).

Current confusion may only be situational/temporary!
Safer if the driver did not get back behind the wheel.
Not a guaranteed loss of license!

* Hill, L., Rybar, J., Stowe, J., Jahns J. Development of a curriculum and roadside screening tool for Law enforcement identification of medical impairment in aging drivers (2016) Injury Epidemiology 3:13 DOI 10.1186/s40621-016-0078-3 https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4858548/pdf/40621_2016_Article_78.pdf

(Timed) Get up & Go Test



- Seconds
- <10
- <20
- 20-29
- >30

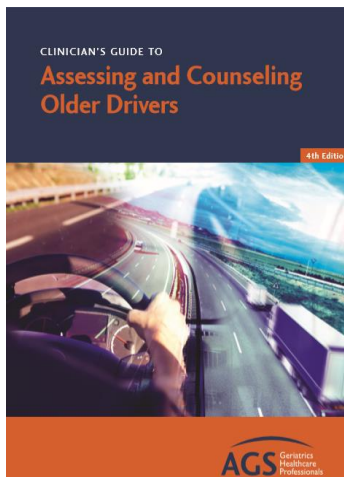
Rating

- Freely mobile
- Mostly independent
- Variable mobility
- Assisted mobility

Time > 30 sec =
concern re: driving

- Only valid for patients not using an assistive device.

• Mathias S, Nayak US, Isaacs B. Balance in elderly patients: the "Get-up and Go" test. *Arch phys Med Rehabil.* 1986; 67(6): 387-389.



**Additional screening tools
healthcare providers &
others can use to judge
driving safety**

- **Get up & go**
- **Mini - cog**
- **Mini Mental State Exam**
- **Montreal Cognitive Assessment (MoCA)**

**Clinician's Guide to Assessing and Counseling Older Drivers, 4th Edition Alice Pomidor - editor New York , 2019 The American Geriatrics Society & NHTSA*

Preventing injury and death

- Incorporate pathophysiological changes into plan of care ~ use trauma system
- Make sure they are safe and strong enough to ride and manage the bike/cycle/ATV
- Promote educational programs / training for motorcycles & bicycles
- Educate about appropriate gear - leathers, helmets
- Advocate for legislation related to safety: on the road, related to/on the patient, and the equipment

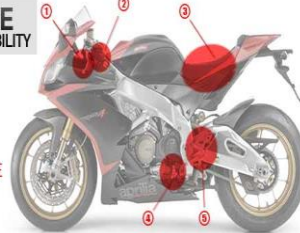


Promote getting the right size bike. Adjust it for safety. Increase size once more adept

HOW TO: ADJUST YOUR MOTORCYCLE CONTROLS TO FIT YOUR BODY

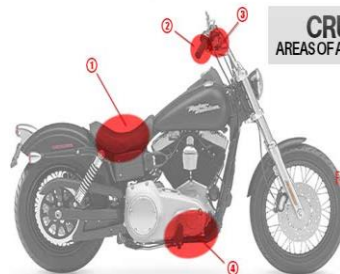
SPORTBIKE AREAS OF ADJUSTABILITY

- ① LEVERS
- ② CLIP-ONS
- ③ SEAT
- ④ SHIFTER PEG/BRAKE
- ⑤ FOOTPEG



CRUISER AREAS OF ADJUSTABILITY

- SEAT ①
- HANDLEBARS ②
- LEVERS ③
- FOOT CONTROLS ④



Attend an updated safety course



Evil Knievel was 69

**Remind your riders:
Evel Knievel wore a helmet!
Be aware of surroundings
Know others can't see you
Watch where you stop/park
cycles tip easily**



**EVEL
KNIEVEL
WORE A
HELMET.**



THE OUTLAW BIKER – THEN ...

Dress for safety

Oops! Let's try that again!

Original protective head gear

Requisite biker beard

Telltale tattoos

Load, obnoxious V-twin ear blaster with straight pipes

SHOVELHEAD HARLEY

Vintage F&J glare

Glove-free hand allowing easy extension of middle finger

Unwashed Levi's, well-used black T-shirt and road-conditioned leather vest — when combined — emit pungent, deliberate odor

Overall appearance designed to intimidate the general motorcycling community

Eye Protection:
Face shield or goggles

Helmet: Snell or DOT approved

Long sleeved jacket or heavy shirt

Gloves: full finger

Long Pants: heavy jean type

Boots: Sturdy/steel toed



For more information on Bicycle Safety
visit www.nhtsa.gov/Driving-Safety/Bicycles

Light

Eye protection or sunglasses

Helmet

Reflective clothing

Reflectors

Gloves

Sturdy shoes

Have a Good Day

The Older Adult's ATV?



Required Safety Equipment



We recommend wearing specialist motorbike clothing, boots and gloves

All-Terrain Vehicle (ATV) Safety Checklist



For more information:
Call (302) 651-KIDS or visit www.nemours.org/safety

- Always follow the manufacturer's minimum age recommendation.
- Participate in an ATV safety training course.
- Always wear a helmet, eye protection and protective clothing.
- Do not drive with (or be) a passenger on an ATV.
- Avoid riding at night.
- Use caution on uneven terrain.
- Never drive an ATV on paved roads.
- Never operate an ATV while under the influence of drugs or alcohol.



Granny! Where is your helmet?

Hopefully you now know:

- Some of the "why's" older adults crash
- Why they are at higher risk of having a poor outcome
- Ways to keep them safe & heal well

someswasblackhole@gmail.com

