

Common Conditions and the Implications for Safe Driving

Diagnosis	Physical Functional Impairment and Driving Implication	Visual/Perceptual Functional Impairment and Driving Implication	Cognitive Functional Impairment and Driving Implication	Typical Adaptations
Aging	<p>May Experience the below to varying degrees:</p> <ul style="list-style-type: none"> • Diminishing Muscle strength . may affect driving stamina • Back pain due to changes in spine making it more difficult to sit for long periods • Joints may lose flexibility – may have limitations in checking blind spots, backing, etc. • Hearing loss – may delay response to other vehicles 	<p>May Experience the below to varying degrees:</p> <ul style="list-style-type: none"> • Decreased peripheral vision and depth perception limits visual field • Cataracts, glaucoma, diabetic retinopathy lead to poor contrast and more difficulty in adjusting to light changes • Acuity changes affect how clearly driving environment is seen. • Night Vision decreases • Recovery from oncoming headlights is slower (glare recovery) 	<p>May Experience the below to varying degrees:</p> <ul style="list-style-type: none"> • Processing speed decreases affecting quick decision making behind the wheel. • Less flexibility in decision making 	<ul style="list-style-type: none"> • May benefit from backing camera or blind spot mirrors. • May benefit from handybar to aid with sitting and getting up from vehicle seat. • If uses a cane, walker or wheelchair, may need a means to load/unload it. • May benefit from seat cushion to increase visual eye ellipse. • Begin driving retirement planning
Amputations	<ul style="list-style-type: none"> • Loss of an Extremity may affect interface with vehicle controls. 	<ul style="list-style-type: none"> • Usually no visual changes unless secondary diagnosis such as diabetic retinopathy when disability is related to a disease process. 	<ul style="list-style-type: none"> • Usually no Cognitive changes • If associated with aging, may have difficulty learning new controls. 	<ul style="list-style-type: none"> • Left foot accelerator, hand controls, steering orthotics. • May need means to transport wheelchair or scooter.
Arthritis	<ul style="list-style-type: none"> • Physical deformity and chronic pain is often associated, limiting grasp on wheel. Difficulty in accessing all controls including ignition and gear shift. • Stiffness. May limit ability to turn neck for scanning or access other controls. 	<ul style="list-style-type: none"> • Usually no Visual Impairment. 	<ul style="list-style-type: none"> • Usually no Cognitive Impairment. 	<ul style="list-style-type: none"> • Special mirrors • Steering Orthotics • May need adaptations to key and gear shift. • Occasionally requires reduced effort steering and braking. • Means to transport wheelchair or scooter • Automatic transmission cruise control.

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Brain Injuries	<ul style="list-style-type: none"> • May have secondary orthopedic injuries but often no physical impairments. 	<ul style="list-style-type: none"> • Impairment in Eye Alignment – leads to double vision, or alternating suppression with difficulty in keeping centered lane position, negotiating turns and curves, and handling congested, high speed traffic. • May have head tilt to compensate for double vision. • Slowed visual/motor coordination affects speed of reacting behind the wheel. 	<ul style="list-style-type: none"> • Difficulty in processing speed limits quick decision making. • Impulsivity may lead to unsafe maneuvers behind the wheel. • Impaired attention may lead to distractibility when driving. • Forgetfulness may impact route planning. • Poor judgment may lead to unsafe decision. • Decreased flexibility in thinking. • More difficult to process multiple decisions simultaneously which decreases safety with high speed and congested traffic. • May need to relearn routes. • May need restrictions regarding traffic conditions, radius of home, speed. • Learning may be impacted affecting driving instruction success. 	<ul style="list-style-type: none"> • May benefit from special mirrors. • If physical impairments, may need special equipment.

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Cerebral Palsy	<ul style="list-style-type: none"> • Imbalance in muscle tone or strength affects interface with driving controls. • Startle reflex can lead to involuntary movement if startled when driving. • Decreased ambulation with impact on transfers in and out of vehicle. 	<ul style="list-style-type: none"> • Nystagmus impacts smooth visual scanning and assessment of environment. • Poor eye teaming, Double vision or visual suppression impacts efficiency of visual use and visual processing is slow. • Poor visual multi-tasking (tunnel vision) impacts ability to assess full environment when driving. 	<ul style="list-style-type: none"> • May have deficits related to processing speed which limits quick decision making behind the wheel. • More difficult to process multiple decisions simultaneously which decreases safety with high speed and congested traffic. • Other cognitive challenges need individual assessment. 	<ul style="list-style-type: none"> • Often use hand controls. • Requires extensive training to maximize strengths. • Usually have driving restrictions. • Means to transport wheelchair/scooter/or crutches.
Dementia (with associated aging deficits) <ul style="list-style-type: none"> • Family Input is helpful. • May be progressive and require periodic reassessment. 	<ul style="list-style-type: none"> • May have postural changes associated with aging (kyphotic, poor neck rotation, decreased fluidity of movement. • Impacts checking for blind spots, quick maneuvers and reaction time. • May fatigue more easily. 	<ul style="list-style-type: none"> • Cataracts affect ability to see in low contrast situations (i.e. dawn or dusk) • Night Vision decreases • Peripheral Vision Decreases. • Need to assess for other visual disorders such as macular degeneration. 	<ul style="list-style-type: none"> • Dementia affects processing speed and making decisions quickly. • Disorientation of time and place. • Problems with abstract thinking. • May struggle with increased traffic congestion and speed. • Difficulty with multi-tasking decisions behind the wheel. • May forget destination or route. • Will limit their visual attentiveness in order to have less to respond to. • Changes in personality, mood or behavior can affect reaction to driving situations. 	<ul style="list-style-type: none"> • Usually none required. • May benefit from backing camera or blind spot mirrors. • May benefit from handybar to aid with sitting and getting up from vehicle seat. • If uses a cane, walker or wheelchair, may need a means to load/unload it. • Need to start driving retirement plan • Probably requires periodic reassessment • Family Input is important.

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Diabetes	<ul style="list-style-type: none"> • Muscular Weakness • Peripheral Neuropathy 	<ul style="list-style-type: none"> • Visual challenges may be intermittent including double or blurred vision. • Acuity can fluctuate with blood sugar levels. 	<ul style="list-style-type: none"> • Lethargy • Can experience dizziness, faintness or altered consciousness • Insulin shock or hypoglycemia episodes • May have hearing loss. • Mood swings, irritability, headaches, depression, restlessness 	<ul style="list-style-type: none"> • Hand controls are often required to compensate for lower extremity neuropathy or amputation. • May need left foot accelerator if diabetic amputation. • May need means to transport mobility aid.
<p>Multiple Sclerosis and Other Neurological Diagnosis</p> <ul style="list-style-type: none"> • May be progressive and require periodic reassessment. 	<ul style="list-style-type: none"> • Limitations in use of limbs due to neuropathy or muscular degeneration impact interface with vehicle controls. • Spasticity affects smooth reliable movements. • Fatigue affects driving endurance. • Often affect more/less by weather conditions. • Bowel and bladder dysfunction may limit travel. 	<ul style="list-style-type: none"> • May have visual impairments related to intermittent double vision or blurriness. • Can have visual fatigue. • Visual acuity may fluctuate. 	<ul style="list-style-type: none"> • Difficulty in processing speed limits quick decision making. • More difficult to process multiple decisions simultaneously which decreases safety with high speed and congested traffic. • May need restrictions regarding traffic conditions, radius of home, speed. • Emotional or mood swings. • Depression 	<ul style="list-style-type: none"> • Hand controls are often required to compensate for lower extremity weakness. • May benefit from special mirrors and steering orthotics. • May require reduced effort steering and/or brakes. • Likely needs periodic reassessment

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Muscular Dystrophy	<ul style="list-style-type: none"> • Limitations in use of limbs due muscular degeneration impact interface with vehicle controls. • Fatigue of weak muscles affects driving endurance. • Progressive disability may lead to changes in safety related to driving. 	<ul style="list-style-type: none"> • Usually no visual impairment. 	<ul style="list-style-type: none"> • Usually no cognitive impairment. 	<ul style="list-style-type: none"> • Specialized equipment of varying complexity including hand controls, torso support aid, steering orthotics, secondary control modifications, and means for wheelchair transport. • Often requires specific vehicle.
Spina Bifida	<ul style="list-style-type: none"> • Limited or no use of lower extremities. • Seated balance affected – need torso support for safe driving. • Spasms may be present. 	<ul style="list-style-type: none"> • May have perceptual challenges that impact lane positioning and assessment of moving traffic. 	<ul style="list-style-type: none"> • Sometimes learning skills are affected and driver training requires a more lengthy process. • May require driving restrictions for compensatory means (limited radius, familiar areas). 	<ul style="list-style-type: none"> • Usually requires hand controls, torso support aid, and steering orthotics • May requirements for wheelchair /scooter transport. • May require specific vehicle.
Spinal Cord Injuries	<ul style="list-style-type: none"> • Limited or no use of paralyzed limbs. • Seated balance affected – need torso support for safe driving. • Spasms 	<ul style="list-style-type: none"> • Vision is usually intact. 	<ul style="list-style-type: none"> • Cognition is usually intact. 	<ul style="list-style-type: none"> • Need specialized equipment of varying complexity usually including hand controls, torso support aid, steering orthotics, secondary control modifications, and means for wheelchair transport. • Often require specific vehicle to accommodate needs.

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Stroke (CVA)	<ul style="list-style-type: none"> • Impaired Balance affects mobility safety to and from vehicle. • Decreased Transfer ability in and out of vehicle. • Limited use of all limbs (paresis or hemiparesis) for operating steering, gas, brake and secondary controls. 	<ul style="list-style-type: none"> • Impaired eye and head dissociation with difficulty checking mirrors and blind spots. • Impaired Visual Fields/Hemianopsia requiring special training. Difficulty in congested traffic or uncontrolled intersections. • Poor time and space management – visual neglect or midline shift impacts vehicle position on the road. • May not meet state legal visual guidelines. 	<ul style="list-style-type: none"> • Impulsivity may lead to unsafe maneuvers behind the wheel. • Impaired attention may lead to distractibility when driving. • Forgetfulness may impact route planning. • Poor judgment may lead to unsafe decision. • Decreased flexibility in thinking. • May have aphasia or associated language deficits. 	<ul style="list-style-type: none"> • May need steering orthotic, left foot accelerator or adaptations to secondary controls such as turn signals. • May need means to transport a wheelchair/scooter or other assistive device.
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