Driving and Independence

• Driving is an IADL—a cornerstone for independence
• Car ownership and driving are highly correlated with independence and life satisfaction in adults

  1 Choi et al., 2014; Fonda et al., 2001; Marottoli et al., 1997; Ragland et al., 2005

• After injury, illness, safe community mobility and driving skills can be impaired
• Lack of community mobility/driving can lead to social isolation, and is associated with a variety of health conditions including depression

  2 Ragland D, Satariano W, MacLeod K. Driving cessation and increased depressive symptoms. The Journals of Gerontology Series A: Biological Sciences and Medical Sciences. 2005; 60(3):399-403.
Quality of Life-Social Health

- Social health decline after driving cessation was greater among women than men\(^1\)
- Over a 13-year period, driving cessation was associated with a 51% reduction in the size of social networks of friends and relatives
- Tendency to spend less time on social activities and spend more time in solitary leisure or abandoned former social activities\(^2\)


**Evidence:**  The perception of the meaningfulness and performance of instrumental activities of daily living from the perspectives of the medically-at-risk older adult and their caregiver.

**Source:** Dickerson, Reistetter, & Gaudy, 2012

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**Instrumental Activities of Daily Living**

- Shopping for groceries
- Planning a meal
- Cooking
- **Driving**
- Planning trips
- Community participation
- Home management
- Yard work
- Financial management
- Medication management
- Phone use
Meaningfulness of IADLs

- Driving: 26
- Managing Medication: 24
- Community participation: 23
- Home management: 22
- Managing finances: 22
- Shopping for groceries: 22
- Cooking: 20
- Yard work: 19
- Planning meal: 18
- Planning trip: 17

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Driver Rehabilitation
Driving is a highly complex and demanding task. Medical conditions and age related changes, either physical, visual or cognitive, can affect driving ability.
Driver Rehabilitation

Consists of evaluation, training, and vehicle modification recommendations for drivers and passengers with disabilities and age-related impairments as well as counseling and support in the pursuit of maintaining mobility within the community

_Best Practice Guidelines for the Delivery of Driver Rehabilitation Services (2016), Association for Driver Rehabilitation Specialists (ADED)._
Driver Rehabilitation Specialists (DRS or CDRS)
Driver Rehabilitation
Best Practice & Guidelines

- Intake, driving and medical history
- Clinical assessment
- On-road assessment
- Training—when indicated
- Vehicle and equipment assessment
- Recommendations
On-The-Road Assessment

Best method to determine driver performance within the context of a real traffic environment.
Comprehensive Driver Evaluation Determines:

• Client ability, limitations
• Critical errors
• Equipment/vehicle mods
• Need for follow-up services
• Additional training needs
• Learning style, attitude, insight
Clinical Diagnoses and their Implications for Driving
Clinical Impairments and their Implications for Driving
Visual Skills/Driving Impairments

**Acuity**
- Unable to read road sign or lane markings

**Contrast Sensitivity**
- Difficulty in seeing things in the environment, especially on gray/overcast days or poor light conditions

**Night Vision**
- Difficulty when light changes from light to dark
- Glare recovery

**Visual Fields**
- Narrowed visual search
- Poor scanning of environment

**Visual Neglect**
- Lane maintenance
- Fails to recognize oncoming traffic (L)
Vision Interventions

- **Restorative changes:** cataract or lens surgery, corrective lenses
- **Restrictions:** Daytime only, no highway specific routes
- **Training strategies:**
  - Space management
  - Scanning techniques
  - Shape recognition
Vision Interventions

- Sunglasses/Glare Reduction
- Prisms
- Bioptic
- Mirrors
Cognitive Skills/Driving Impairments

Attention
- Loses focus, distracted
- Lane position, maintenance, over-correction

Shifting attention
- Difficulty in dividing attention between relevant and non-relevant items.

Mood, behavior
- Anger, frustration, road rage

Short term memory
- Becomes lost, confused
- Relies on co-piloting

Impulsivity
- Dismissive of signs, signals
- Speeding, overtaking other vehicles
Cognitive Interventions

- Limit distractions
- Commentary driving
- GPS, maps
- Use of cognitive aides/devices
Cognitive Interventions

• Training strategies:
  – Repetition
  – Consistency of performance

• Use support systems to enforce recommendations and restrictions
Physical Skills

- Range of Motion, Strength, Coordination, Sensation
- Balance
- Loss of limb
- Level of injury
- Ambulation, Mobility, Assistive Devices
- Transfers
Equipment and Vehicle Options

*Disclaimer: there are many options commercially available. The examples shown here are not intended to endorse any specific manufacturer.

*Remember: Operating a motor vehicle is a complex activity with many considerations and implications for safety and independence.

It is best to seek out a driver rehabilitation specialist to explore driving options before making a costly investment that may not be suitable.
Wheelchair Accessible Vehicles (WAV)

VMI-Honda Odyssey

BraunAbility MXV
Truck and SUV Conversions

Driver Rehabilitation  OCT 2017
Transfers from outside the vehicle

Bruno-Valet Seat

Adapt Solutions-XL Board
Manual Wheelchair Transfer /Stowage Options
Scooter Lift and Transport Options
Wheelchair Lift and Transport Options
Wheelchair Securement

- 4-point tiedown systems are NOT designed for independent use
- Automated docking systems allow independent securement when riding in vehicle and seated in a wheelchair.
  - EZ-Lock
  - Qstraint
Power Seat Base - Driver Side
Mechanical Hand Controls
Electronic Hand Controls
Left Foot Accelerator
Steering Devices/Secondary Controls
Driver Rehabilitation - Introduction
Technology that assists in one's quest for driving independence shows promise in promoting life satisfaction and improved quality of life.
Questions?

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