



University of South Florida
**GERIATRIC
WORKFORCE
ENHANCEMENT
PROGRAM (GWEP)**
Learn@Lunch
Geriatric Education Series

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Providers of
Continuing Education

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Making Life BetterSM

UNIVERSITY OF SOUTH FLORIDA

DRIVING EVALUATIONS: THE FORGOTTEN ADL



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USF Health Byrd Alzheimer's Center
and Research Institute



...until Alzheimer's is a memory®

OBJECTIVES

- To identify the diagnoses and clinical symptoms that may warrant a referral for a driving evaluation.
- Identify Florida anonymous reporting law and how it can be useful in clinical practice.
- Understand 2-3 possible recommendations as outcome of driving evaluation.

FORGOTTEN ADL??

- ⦿ What is ADL? – Activity of Daily Living
- ⦿ Occupational Therapy schools – not previously taught
- ⦿ Skilled Nursing Facilities?
- ⦿ Rehabilitation Hospitals?
- ⦿ Home health therapists?

AGING AND DRIVING STATISTICS

- ◉ There are 30 million + people age 70 and older living in the United States.
- ◉ In early 2011, the first “Baby Boomers” turned 65.
- ◉ 10, 000 baby boomers will turn 65 each day, for 17 years.
- ◉ Motor Vehicle Injuries are the leading cause of injury-related deaths among 65-74 year olds and the second leading cause among 75-84 year olds. (AMA, 2010)
- ◉ By the year 2050, estimated to be 1 mil over age of 100 years.
- ◉ In 2012, 5,560 people over the age of 65 died, and 214,000 were injured in motor vehicle crashes.(NHTSA’s *Safety in Numbers*)
- ◉ In 2012, there were 35 million licensed older drivers(age 65+).
- ◉ Fatal crash rates increase at age 75 and then notably after age 80.
- ◉ NHTSA released in December 2013 “Traffic Safety for Older People – 5Year Plan”

National Highway Traffic Safety Administration. (2013, December). *Traffic safety for older people – 5-year plan*. (Report No. DOT HS 811 837). Washington, DC: Author (NHTSA 37-13) (NHTSA-2009 Traffic Safety Facts)

MEDICAL NECESSITY/POSSIBLE DIAGNOSES

- ⦿ Any type of Dementia
- ⦿ Parkinson's Disease
- ⦿ Mild Cognitive Impairment
- ⦿ CVA – perceptual/visual deficits, neglect, decreased cognition
- ⦿ MSA, HD- chorea, lack of coordination
- ⦿ Multiple Sclerosis
- ⦿ Post Anesthesia Delirium
- ⦿ Total Hip or Total Knee Replacement Surgery
- ⦿ Diabetes/Peripheral Neuropathy
- ⦿ Visual Impairments – macular degeneration, cataracts, glaucoma
- ⦿ Severe Arthritis – back pain, pain syndromes, opiod use
- ⦿ Age related changes
- ⦿ Amputation
- ⦿ TBI

PHYSICIANS RESPONSIBILITY

- It is a physician's ethical responsibility to report patients to the state's motor vehicle administration when physician believes that the patient is a threat to road safety. *From the American Medical Association's Council on Ethical and Judicial Affairs, December 1999*
- The AMA created the Physician's Guide to Assessing and Counseling Older Drivers.
 - Includes brief office based assessment for medical fitness to drive.
 - Medical conditions and medications that may affect driving
 - Recommendations for rehab options
 - Discussion of legal and ethical issues
 - www.ama-assn.org
 - It is important to interview caregiver without the patient present as you will receive more information.

OCCUPATIONAL THERAPISTS ETHICAL OBLIGATION

- According to AOTA, Occupational Therapists have an ethical and professional obligation to address driving when delivering occupational therapy **services.** (Principle 1E, Occupational Therapy Code of Ethics and Ethics Standards:2010, AOTA 2010a)
- A Clients safety is a professional concern.
- Even generalist level OT's are qualified to screen for and make a referral to a DRS when necessary.

MEDICATIONS THAT MAY IMPAIR DRIVING ABILITY

- ⦿ Anticholinergics – Benadryl, Dramamine, Unisom, Spiriva, Detrol
- ⦿ Anticonvulsants – Tegretol, Gabapentin, Lyrica
- ⦿ Narcotic analgesics – morphine, demerol
- ⦿ Antiemetics – Remeron, Zofran
- ⦿ Some antidepressants – Bupropion, MOA inhibitors, SSRIs, Tricyclic antidepressants
- ⦿ Antipsychotics
- ⦿ Cough medicines
- ⦿ Decongestants
- ⦿ Muscle relaxants
- ⦿ Stimulants

WARNING SIGNS

- ⦿ Getting lost in familiar places.
- ⦿ Scrapes or dents on car, garage or mailbox.
- ⦿ Accidents or Tickets
- ⦿ Using a co-pilot
- ⦿ Driving too slow or too fast.
- ⦿ Avoids making left turns.
- ⦿ Unable to recognize/comprehend road signs and traffic signals.
- ⦿ Gets agitated or angry easily while driving.
- ⦿ Slow reaction times/close calls.
- ⦿ Difficulty with correct stopping distance at intersections.
- ⦿ Difficulty with general mobility, getting into and out of a car.

SKILLS CRITICAL FOR DRIVING

- ◉ Steering
- ◉ Accelerating
- ◉ Braking
- ◉ Speed Control
- ◉ Passing
- ◉ Maintaining Lane Position
- ◉ Changing Lanes
- ◉ Turning
- ◉ Following
- ◉ Stopping
- ◉ Yielding
- ◉ Backing up
- ◉ Parking
- ◉ Curves
- ◉ Signaling

PATIENT EXCUSES/ARGUMENTS

- “I have never had an accident!”
- “I have been driving for 50 years!”
- “My wife tells me when to turn and stop.”
- “ I may not know how to do these tests but I can drive just fine!”
- “I didn’t see that stop sign!”
- “I would rather die than lose my independence!”
- “I think someone scanned my purse and turned me in.”
- “I don’t pay attention to the road signs I just try to stay in my lane.”
- “I don’t drive very often.”

DRIVER REHABILITATION SPECIALISTS

- ◉ Where do we get our training?
- ◉ The Association for Driver Rehabilitation Specialists – ADED www.aded.net – non profit organization dedicated to promoting safe and independent mobility for the aging and disabled.
- ◉ ADED holds an annual conference usually in August.
- ◉ American Occupational Therapy Association – recently developed specialty certification, training, publications
- ◉ Often an Occupational Therapist but could also be someone in the field of Driver Education, PT
- ◉ Professionals with extra training and education in the field of driver rehabilitation. Still an emerging field for OT's.

DRIVING ASSESSMENTS

- What do we need to assess?
 - Driving Habits Interview
 - Physical Performance
 - Cognition
 - Vision
 - Knowledge of road signs and rules
 - Performance behind the wheel
- How often do we assess clients?
- How long does it take?
- Who pays for it? Medicare?
- Where can I find a DRS in my area?

DRIVING ASSESSMENTS

- Where do the referrals come from?
 - Physicians - Neurologists, Internal Med/Primary Care, Psychiatrists, Psychologists, Stroke Clinic, Neuropsychologists
 - Caregivers and loved ones
 - Self referral – post accident, license suspension
 - Medical Review Board – if someone reports them to the state as a potentially unsafe driver and/or if their license has been suspended from an incident or accident.
 - Case Managers from WC

DRIVING ASSESSMENTS

○ Physical Examination

- Active ROM in cervical neck, trunk rotation, upper body and lower body.
- Muscle strength testing, grip strength testing
- Coordination and dexterity testing for upper and lower extremities
- Trunk control and trunk mobility
- Reaction time testing
- Timed Up and Go Test
- Sensory and proprioception testing

DRIVING ASSESSMENTS

○ How Physical Impairments Affect Driving

- Neck and trunk stiffness – difficulty to turn and see mirror blind spots
- Upper extremity stiffness and weakness – difficulty to control steering wheel, use correct hand positioning.
- Lower extremity weakness and stiffness – difficulty to push pedals, maintain position
- Slowed or decreased coordination in feet, decreased reaction time – slow to transition from gas pedal to brake pedal, slow to turn or swerve if needed
- Numbness or decreased proprioception can lead to difficulty with use of pedals for acceleration and braking.

DRIVING ASSESSMENTS

○ Cognitive Examination May Include:

- Trails A&B
- DRS , DRS – 2
- Useful Field of View – 3 subtests
- MVPT – visual closure subtest
- Knowledge of Road Signs

DRIVING ASSESSMENT

- ⦿ Trails A is a test of attention and visual scanning. Target for completion is 60 seconds or less.
- ⦿ Trails B is a test of attention switching. Target for completion is 120 seconds or less.
- ⦿ Useful Field of View(UFOV) has 3 subtests
 - Subtest 1 is speed of processing expressed in milliseconds
 - Subtest 2 is divided attention – the ability to notice and pay attention to more than one item at a time
 - Subtest 3 is selective attention – the ability to notice more than one item and also to ignore distraction at the same time
 - Crash Risk Rating – scores of 1-5 with higher scores indicating a greater crash risk.

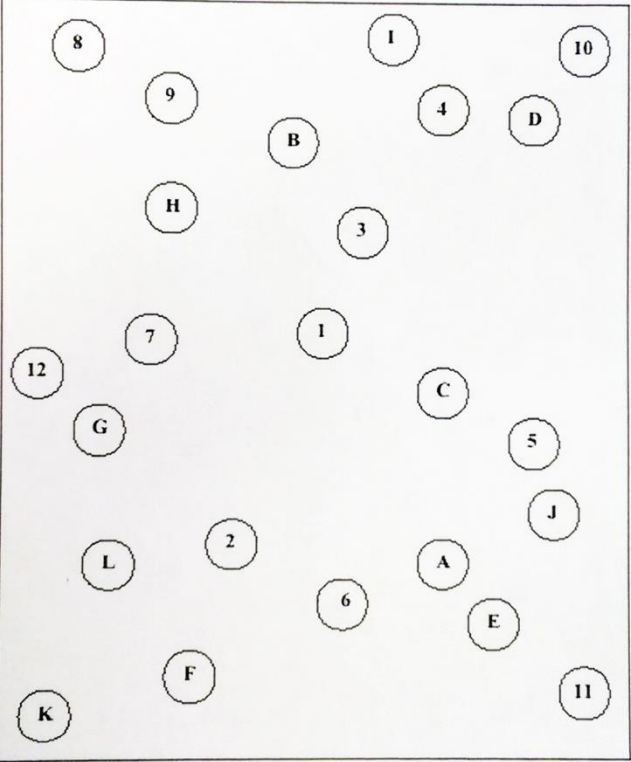
DRIVING ASSESSMENT

- Dementia Rating Scale, DRS – 2
 - Standardized Test for dementia
 - Subtests include: attention, initiation/perseveration, memory, conceptualization and construction
 - Total score can be converted to a percentile range for their corresponding age range.

TRAILS A & B

Trail Making Test Part B

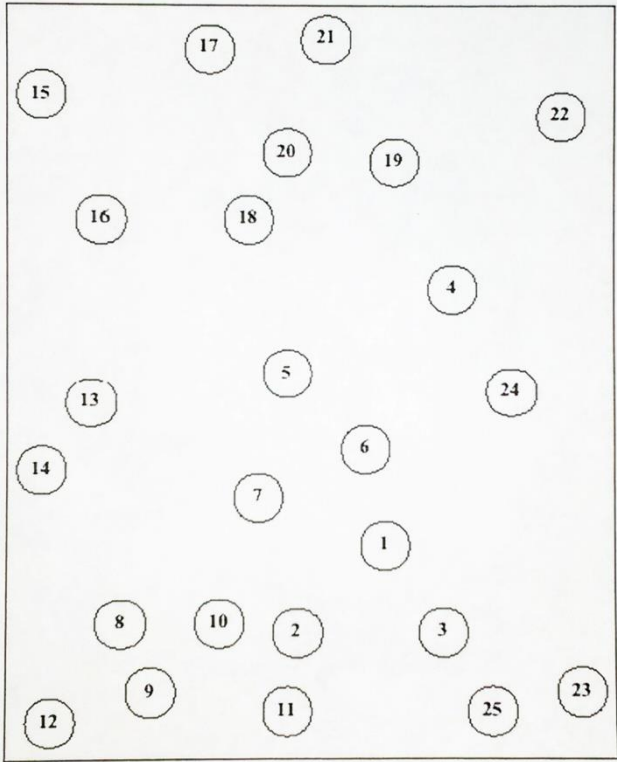
Patient's Name: _____ Date: _____



A square grid containing 14 circles with the following labels: 8, 9, 10, 1, 4, D, B, H, 3, 7, 1, C, 5, 12, G, 2, L, 6, A, J, F, E, K, 11.

Trail Making Test Part A

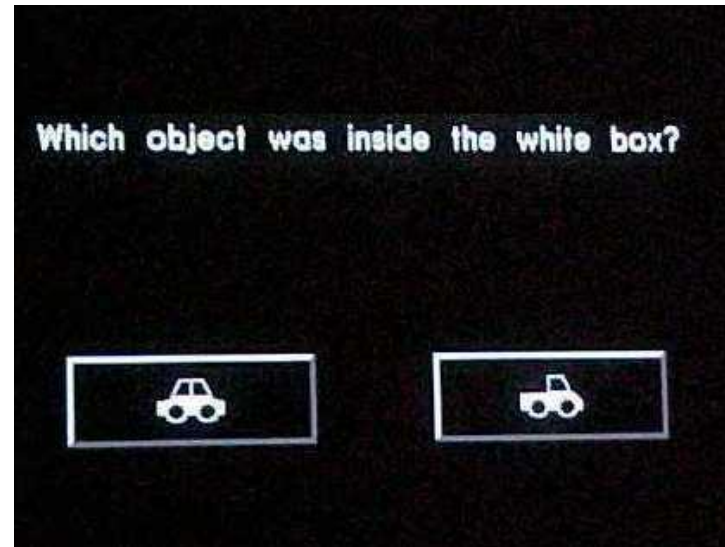
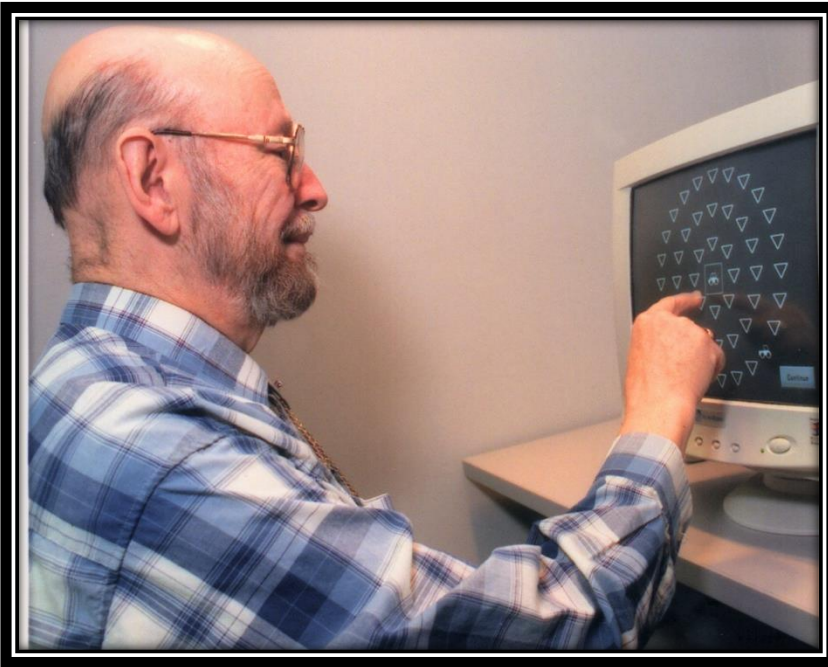
Patient's Name: _____ Date: _____



A square grid containing 25 circles with the following labels: 15, 17, 21, 22, 20, 19, 16, 18, 4, 13, 5, 24, 14, 7, 6, 1, 8, 10, 2, 3, 12, 9, 11, 25, 23.

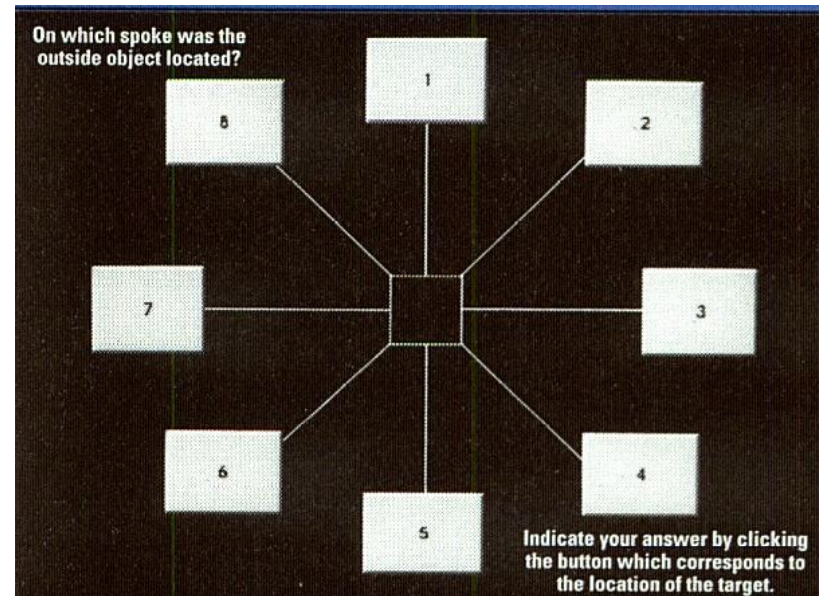
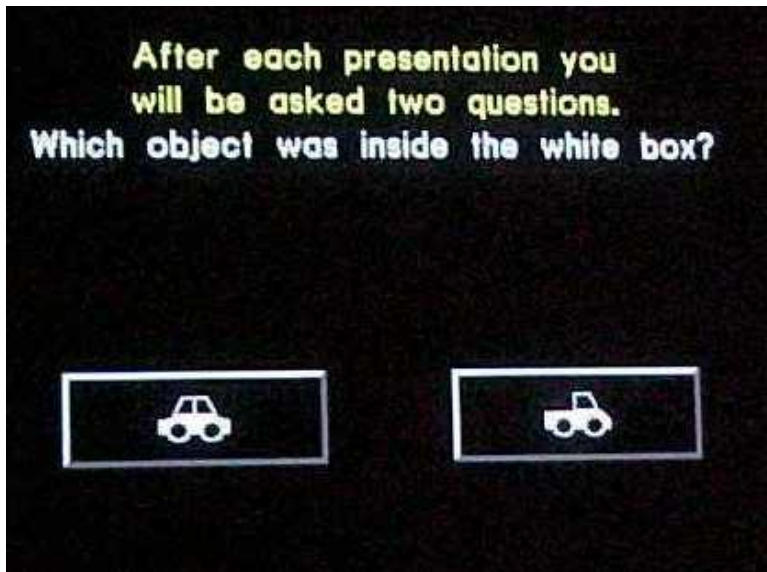
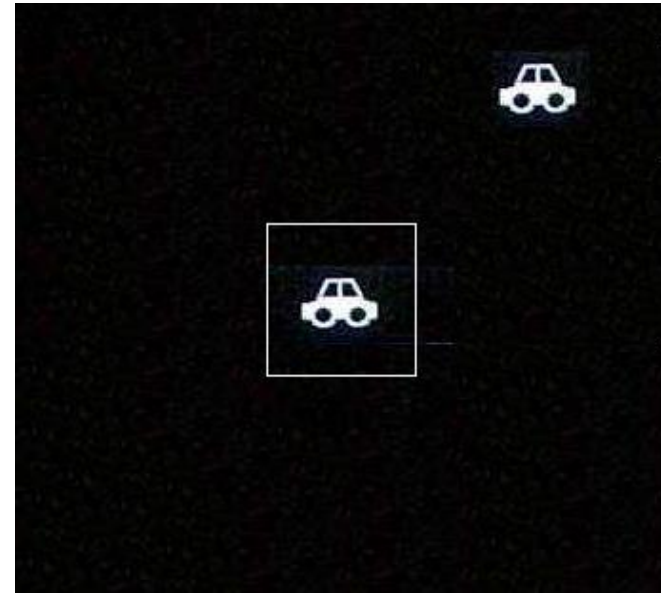
Welcome to UFOV[®] Test 1

This test will measure how fast you can identify a single item. Tests speed of processing.



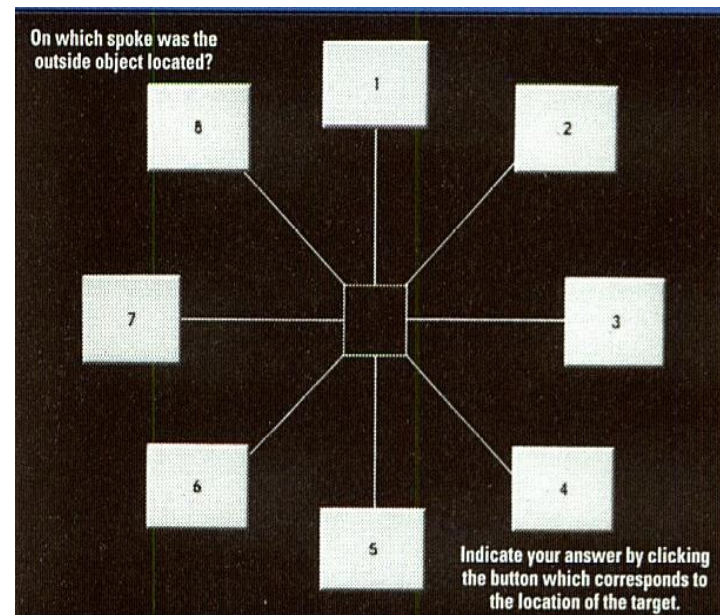
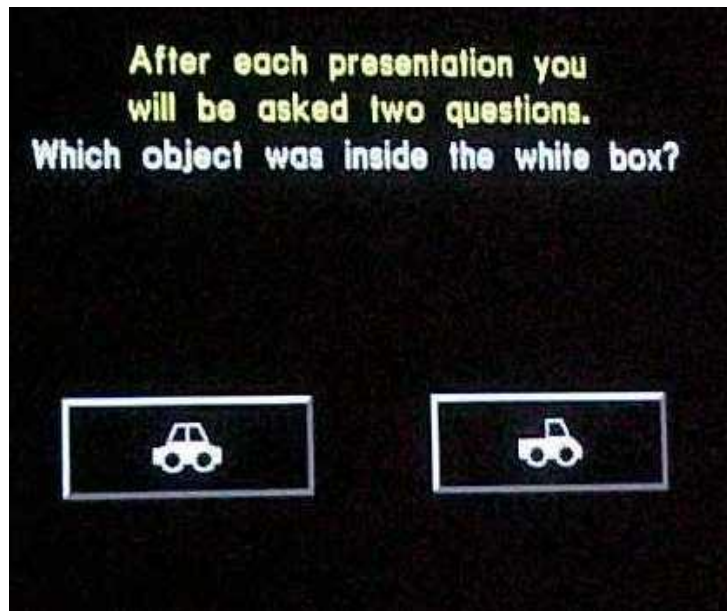
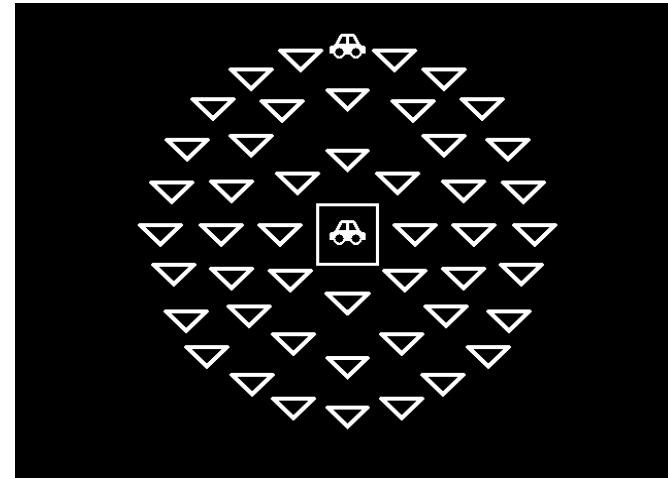
Welcome to UFOV[®] Test 2

This exercise will measure how fast you can divide your attention between two objects.



Welcome to UFOV[®] Test 3

This exercise will measure how fast you can divide your attention between two objects when the outside object is surrounded by clutter.

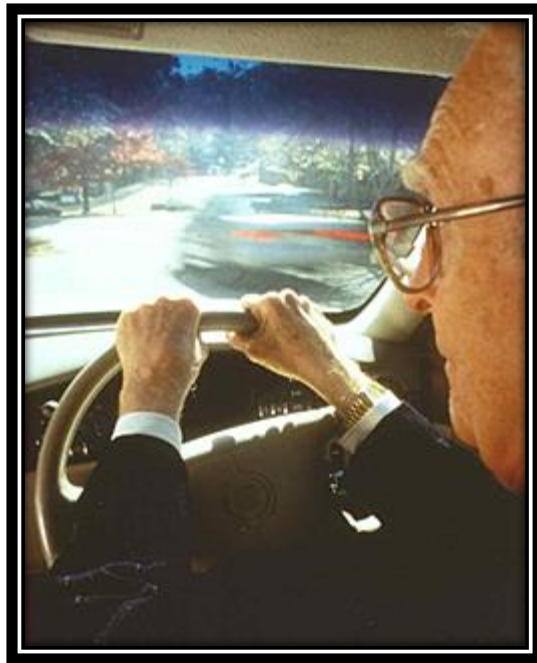


CONCEPTUAL: USEFUL FIELD OF VIEW



UFOV[®] AND MOTOR VEHICLE CRASHES

Older drivers with poor UFOV were 2.2 times more likely to incur a crash over the next three years

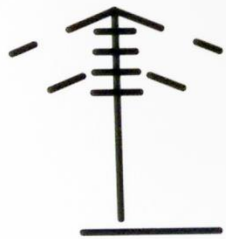


Owsley, Ball et al. (1998) JAMA

UFOV[®] AND MOTOR VEHICLE CRASHES

- Population-based field study using UFOV task 2 performance alone
- Drivers with poor UFOV were twice as likely to incur an at-fault crash over subsequent 4 to 5 years (Ball, et al. 2006 Journal of the American Geriatrics Society)
- UFOV reduction correlates with on-road performance- overall score and specific items (Duckek et al, 1998; Raedt et al, 2000)

MVPT – VISUAL CLOSURE SUBTEST



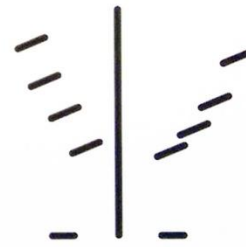
A



B



C

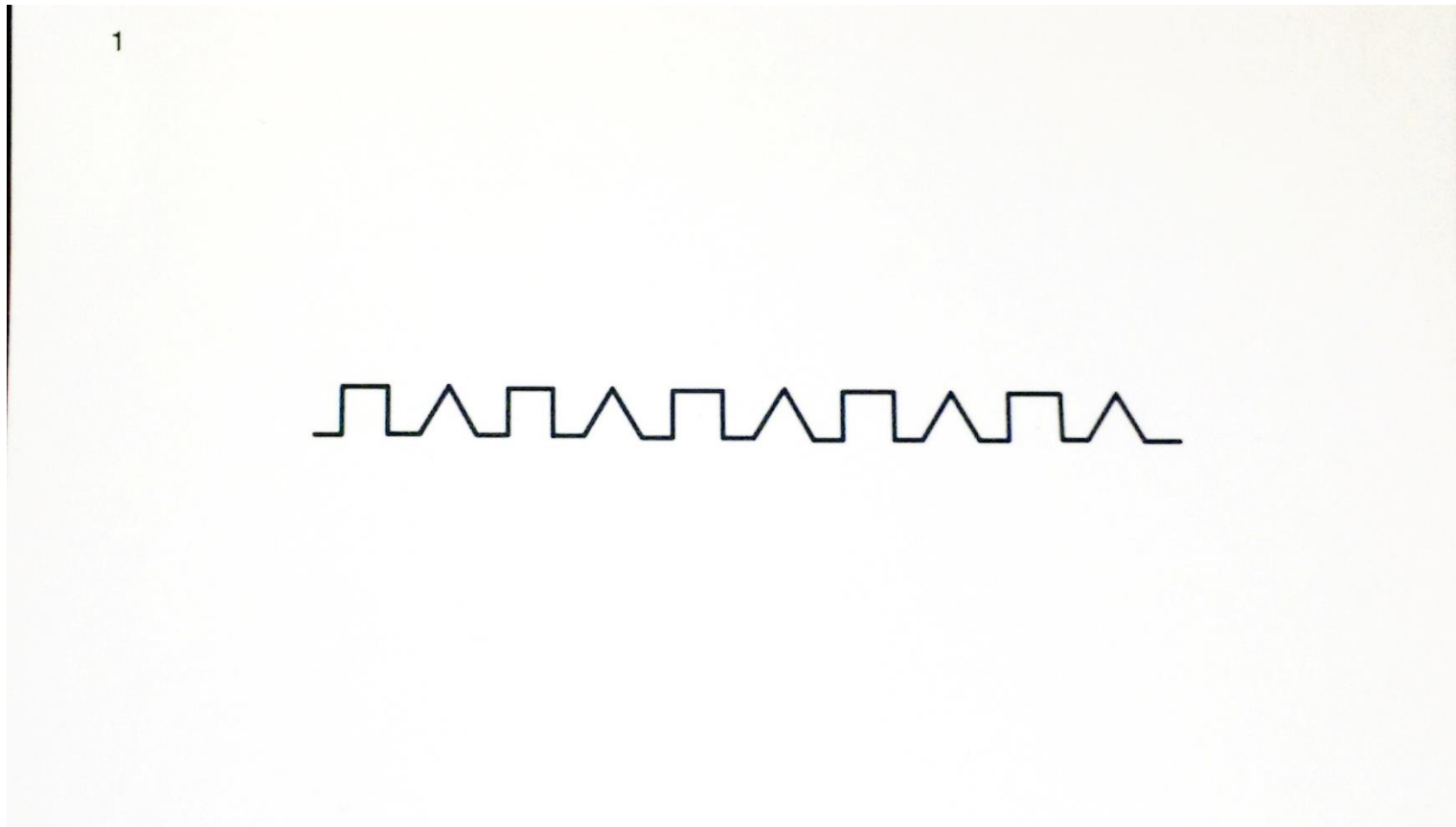


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MVPT AND TRAILS A & B

- Difficulty on both MVPT visual closure and Trails B indicates a client will be 22 times more likely to fail the on the road test. (Mazer et al., 1998)
- The visual closure subtest of MVPT is used in driving test batteries including GRIMPs and CanDRIVE Study.
- Trails B correlates with on the road performance with client groups (Ott et al, 2008:Dey, 2004: Grace et al, 2005)
- Trails A is associated to increased crash risk (Stutt et al, 2008)

DEMENTIA RATING SCALE 2



HOW COGNITIVE DEFICITS POTENTIALLY IMPACT DRIVING SKILLS

- Memory loss – Difficulty to remember appointments, sees posted speed limit but quickly forgets, forgets destination of trip, confusion on rules of the road
- Difficulty with problem solving or planning – difficulty planning driving route to destination, confusion with new detour or construction zone, unable to get back on course after making a wrong turn
- Confusion/decreased orientation – gets lost in usually familiar areas or routes,

HOW COGNITIVE DEFICITS POTENTIALLY IMPACT DRIVING SKILLS

- ◉ Visual/spatial problems – may drive wrong way down one way street, difficulty to stay in lane, difficulty to understand road signs, difficulty with correct stopping distance, difficulty with gap acceptance.
- ◉ Word finding/language problems – unable to understand written road signs, difficulty to follow GPS or written directions
- ◉ Decreased judgement – blames accidents on others, difficulty to judge distances appropriately
- ◉ Mood/Personality Changes – drives too fast or too slow, road rage, becomes agitated with other drivers easily or too timid and afraid to drive

DRIVING ASSESSMENTS

○ Visual Examination

- Optec Vision Tester
- State Vision Standards – Florida has standards for Far Visual Acuity and Peripheral Vision
- Visual Acuity Far and Near
- Peripheral Vision
- Binocularity
- Contrast Sensitivity – Pelli Robson Chart
- Depth Perception
- Color Perception

DRIVING ASSESSMENTS

○ How Visual Impairments Affect Driving

- Acuity impairments – inability to read road signs and other information, driving in low light, detecting road hazards
- Peripheral Vision impairment – not seeing the whole environment including pedestrians, difficulty to manage in a parking lot, planning turns
- Depth Perception – difficulty with timing turns, gap acceptance, stopping distance, parking in a defined space, lane positioning and lane changes.

DRIVING ASSESSMENTS

○ How Visual Impairments Affect Driving

- Color Perception – road signs and traffic lights
- Contrast Sensitivity – night driving, glare, fog
- Visual Field Cuts/Neglect – difficulty with lane management and lane changes.

ON THE ROAD TEST

- ⦿ Completed in dedicated vehicle with safety equipment
- ⦿ Completed by an Occupational Therapist
- ⦿ Cannot be done in their own car
- ⦿ Route leaves from Byrd Institute parking lot and can include residential, urban and interstate driving.
- ⦿ Drive lasts approximately 45-60 minutes.
- ⦿ Patient is evaluated on a scale for each driving skill experienced – ie. Left hand turns, merging into traffic, safe stopping distance, following road signs and traffic laws.

WRITTEN REPORT

- ⦿ Assessment on fitness to drive determined by outcome of all parts.
- ⦿ Report sent to the referring physician and to the patient upon request.
- ⦿ We only report to the medical review board under special circumstances. This is deferred to the referring physician.

- ⦿ Recommendations:
 - Continue with the potential for safe driving and no restrictions
 - Continue driving with restriction – ie no night or interstate driving, only familiar locations, retesting in 6-12 months with dementia or AD diagnosis
 - Retirement from driving
 - Retraining recommended for processing speed, divided attention, selective attention. Computerized cognitive training.
 - Adaptations to car.
 - In the car training.

HOW CAN WE HELP??

- Recommendations can include adaptations to the car.
 - Left foot accelerator
 - Spinner knob
 - Extended turn signal
 - Hand controls
- Recommendation can be made for in-car training to improve skills.
- Computerized training with an occupational therapist to improve processing speed and divided attention skills
- Referral to optometrist or ophthalmologist for improvement with vision
- Training in community mobility that is available if retirement from driving is recommended.

REFERRAL PROCESS

- ⦿ Call my receptionist to schedule: **813-396-0728**
- ⦿ Insurance DOES NOT cover driving assessments.
- ⦿ Cash, credit card with a deposit to hold the appointment.
- ⦿ Two hour clinical exam with possible 1 hour road test on a separate day.
- ⦿ Cancellations – we will let you know if the patient cancels and refuses to reschedule.
- ⦿ Our physicians make it mandatory, not an option.
- ⦿ Make it positive – a chance to prove their driving skills.
- ⦿ Some will refuse. Some will get mad. Most will understand.

ROAD BLOCKS

- ⦿ Fear of losing a license and independence.
- ⦿ Denial of deficits.
- ⦿ Forgetting incidents or accidents, episodes of getting lost.
- ⦿ Feel people are out to get them.
- ⦿ Try to make it as positive as possible – offering them a chance to prove their driving skills.
- ⦿ Liability – chances of being sued
- ⦿ Limited information from patient only

QUESTIONS?



TO SCHEDULE A DRIVING
ASSESSMENT, PLEASE CALL

813-396-0728