OBJECTIVES

1. Describe the role of visual perceptual skills with regard to instrumental activities of daily living, such as driving.

2. Explain the development of the Choro Test as a pre-driving assessment tool.

3. Apply training from the course to utilize the online Choro test with clients.

WHAT IS VISUAL PERCEPTION?

Think of a type of visual perceptual skill

Can you think of an example related to driving that requires this type of visual perception?

Aspect of cognition: active processing of visual input to interpret the environment (Berger et al., 2016)

HOW DO THESE SKILLS IMPACT OCCUPATIONAL PERFORMANCE

Driving – what skills are needed?

• Expert consensus = peripheral vision, depth perception, color sensitivity, acuity and figure ground

• Other skills include: selective and divided attention, speed (processing), reaction time, cognitive and motor functions

VISUAL PERCEPTION & DRIVING

(Bergen et al., 2016)
V. P. DEFICITS & ASSOCIATED CONDITIONS

- Visual skills change with age due to:
  - Cloudy lens, decreased pupil size/accommodation, decreased acuity, decreased contrast sensitivity, increased sensitivity to glare
  - Eye diseases = cataracts, glaucoma, maculopathy (e.g. AMD), diabetic retinopathy
- Physical changes with aging:
  - Frailty, medication use, decreased grip/muscle strength, decreased flexibility, decreased endurance
- Compounded by any medical conditions:
  - TBI, CVA, chronic conditions (e.g. DM), degenerative diseases etc.

VISUAL PERCEPTUAL ASSESSMENTS

- Commonly used assessments for visual perceptual skills:
  - Motor–Free Visual Perceptual Test (MVPT-4)
  - Trail Making A/B
  - Useful Field of View (UFoV)
  - Hooper Visual Organization Test
  - Rivermead Behavioural Memory Test
  - Test of Visual Perceptual Skills (TVPS-3)
  - OT – Adult Perceptual Screening Test (OT–APST)

ASSESSMENTS RELATED TO DRIVING

- MVPT-3
- UFoV
- Trail Making A/B: line bisection; star
- MMSE
- Assessment of Motor and Process skills
- Reaction Time

VISUAL PERCEPTION INTERVENTIONS

- Cognitive Rehab
- Attention
- Memory
- Scanning
- Adaptive strategies
- Vision therapy
- Reaction time/processing speed
- Dual-task training

TBI AND INTERVENTIONS

Vision/visual perception
- Preliminary support for:
  - Scanning
  - Audiovisual stimulation
  - Prisms, scrolling texts
  - Cognitive retraining
  - Engaging in occupations to promote carryover is crucial

CHORO

Identified need from local OTs – Real-life based VP test for adults using photos and concepts related to driving

The authors (Robnett, Chonko and graduate students*) developed and pilot tested the ChoRo with a convenience sample of 109 community dwelling adults beginning in 2009. The ChoRo initially had 60 questions involving photos and figures related to different aspects of visual perception (e.g. form recognition, visual memory, spatial relations).

*Thank you to graduate students Amanda Alboth, Jacqueline Alfred, Cassie Ames, Rebecca Lindquist, & Laura Wallace
CHORO DEVELOPMENT
• Analysis on the test items revealed 10 questions that failed to have an adequate level of discrimination and were therefore eliminated.
• The Spearman rho correlation of the ChoRo and the MVPT-3 was 0.62 (p < 0.0001). This is a moderate correlation which demonstrates that the ChoRo, while related to the MVPT-3, offers unique information with regard to visual perception.
• Age was negatively correlated to both the ChoRo and the MVPT-3 scores (r = -0.7, p < 0.0001 and r = -0.5, p = 0.008 respectively).

CHORO SCORING
• When means were calculated on the remaining 50 questions, the mean for community dwelling adults ages 20 to 86 was 47.5 with a range of 23 to 58 and a standard deviation of 7.4. (Total maximum score = 64)
• Therefore anyone with a score of 40 or below was 1 standard deviation below the norm.
• Initially a paper-pencil test, it’s now available online!

QUESTIONS?
Regi rrobnett@une.edu
Jessica jbolduc@une.edu
Be sure to pick up some cards about the ChoRo!

THANK YOU!

REFERENCES