

# DRIVING AND DEMENTIA

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# The value of driving

- Driving is an instrumental activity of daily life
- Many consider driving to be essential to independence and quality of life
- In older adults giving up driving is associated with:
  - Loss of independence, mobility & freedom
  - Increased social isolation
  - Increased symptoms of depression
  - General accelerated health decline

# The activity of driving

- Driving is a complex task
- Requires interaction between multiple human systems
- Including vision, cognition, motor and sensory functions
- These systems work together to adequately control the vehicle
- Control vehicle in a dynamic and changing environment

# Aging and driving

- Process of aging causes various structural and functional changes
- Decline in visual, cognitive and psychomotor skills
- Older drivers have longer response times = “slowing effect”
- Leads to reduced driving ability in various traffic situations, which might have implications on overall safety

# Aging and driving

- Age related declines in specific skills needed for driving:
  - Visual acuity and visual field loss
  - Decreased visual attention
  - Reduced physical mobility
  - Reduced cognitive status
- With aging there is also an increase in health conditions such as diabetes, macular degeneration, Parkinson's disease and dementia

# Dementia and driving

- A diagnosis of dementia is not in itself a reason to stop driving
- As dementia gets worse, it affects the skills needed for driving
- This means everyone with dementia will eventually be unable to drive safely
- How quickly this happens varies from person to person and the type of dementia

# Dementia and driving

- Because of the progressive nature of dementia, it's critical to be aware of any changes in driving patterns
- Symptoms such as memory loss, visual-spatial disorientation, and decreased cognitive function will worsen over time
- Individuals who pass a driving evaluation should continue to be re-evaluated every six months. Individuals who do not pass must discontinue driving immediately.

# Role of the occupational therapist (OT)

- OT's are trained in assessing functional impairment
- OT's are uniquely positioned to analyse the activity of driving
- The OT understands the relationship between the person the environment and the activity
- By analysing the activity of driving and the clients' functional abilities OT's can determine if there is a fit between the driver and the task of driving

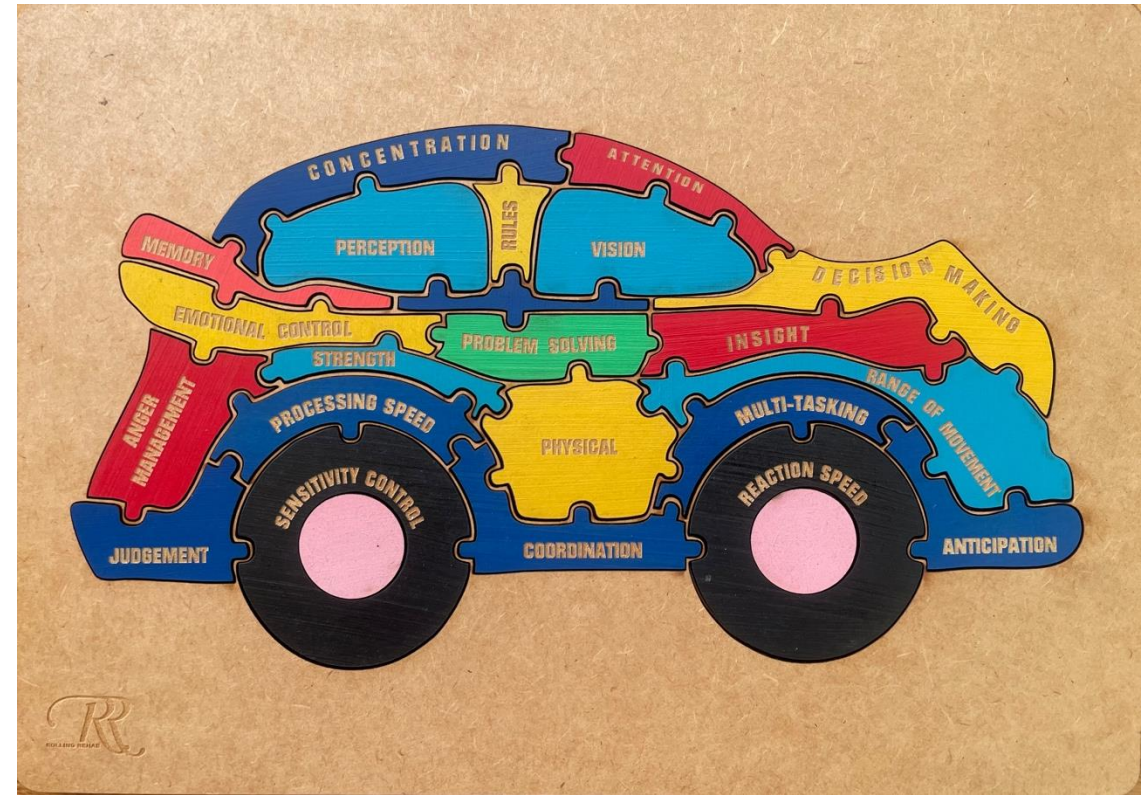


# Role of the occupational therapist (OT)

- OT's assess fitness to drive by performing a Comprehensive Driving Evaluation (CDE)
- The CDE consists of 2 parts:
  1. Office based assessment
  2. On-road driving assessment
- Following the CDE OT's make recommendations about the client's fitness to drive with or without restrictions or they recommend driving cessation

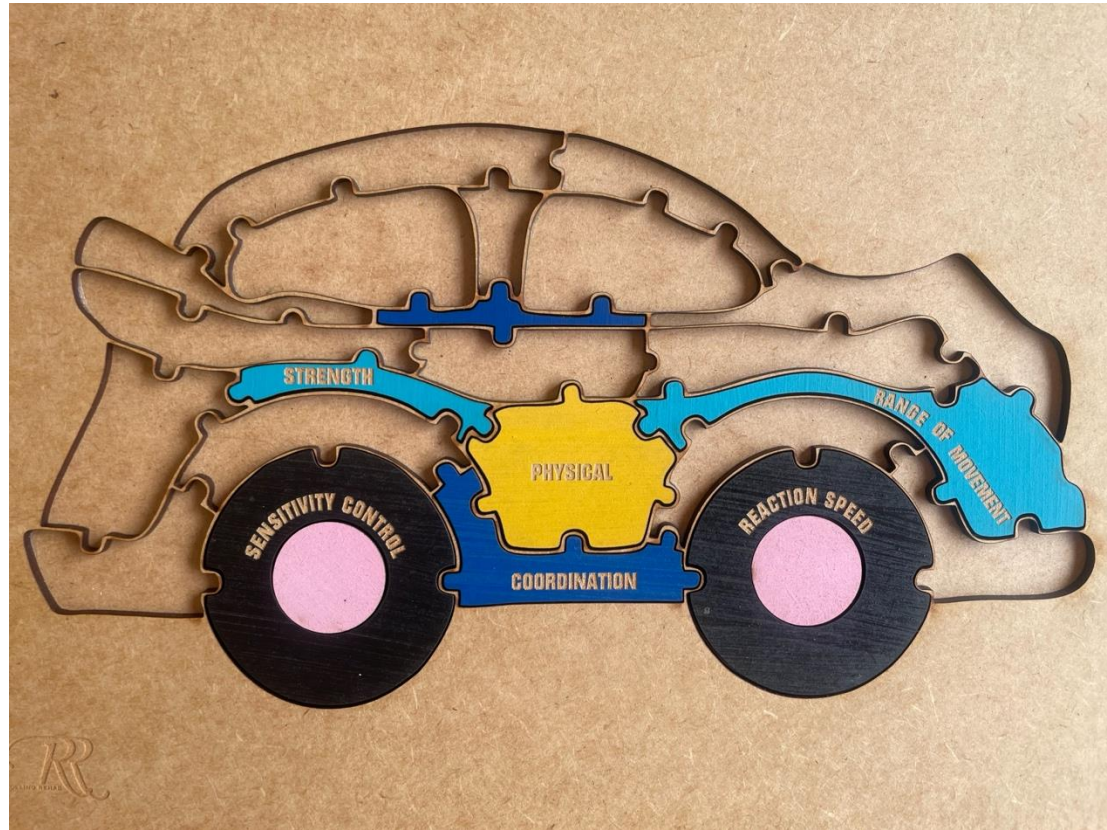
# Skills & abilities needed for driving

- The make-up of a driver puzzle
- The car is made up of many parts that work together to allow the vehicle to work safely
- The driver requires many skills & abilities that all need to work together to allow them to drive safely



# Skills & abilities needed for driving

- Physical



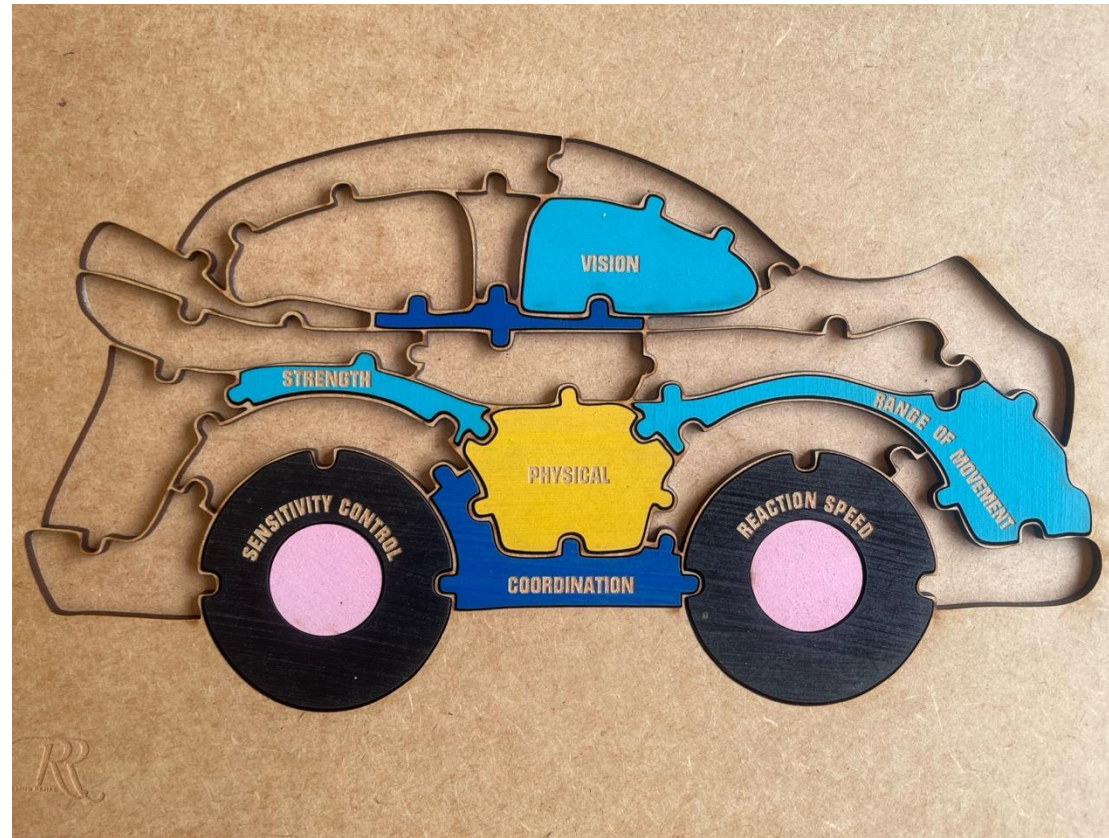
# Skills & abilities needed for driving

- **Physical abilities:**

- Range of movement & strength – steering wheel, pedals, gears
- Sensitivity control – correct amount of pressure on pedals for speed and braking & to release clutch
- Reaction speed – accelerator to brake for emergency stop
- Co-ordination – moving foot smoothly between pedals, steering and gear changes

# Skills & abilities needed for driving

- Vision



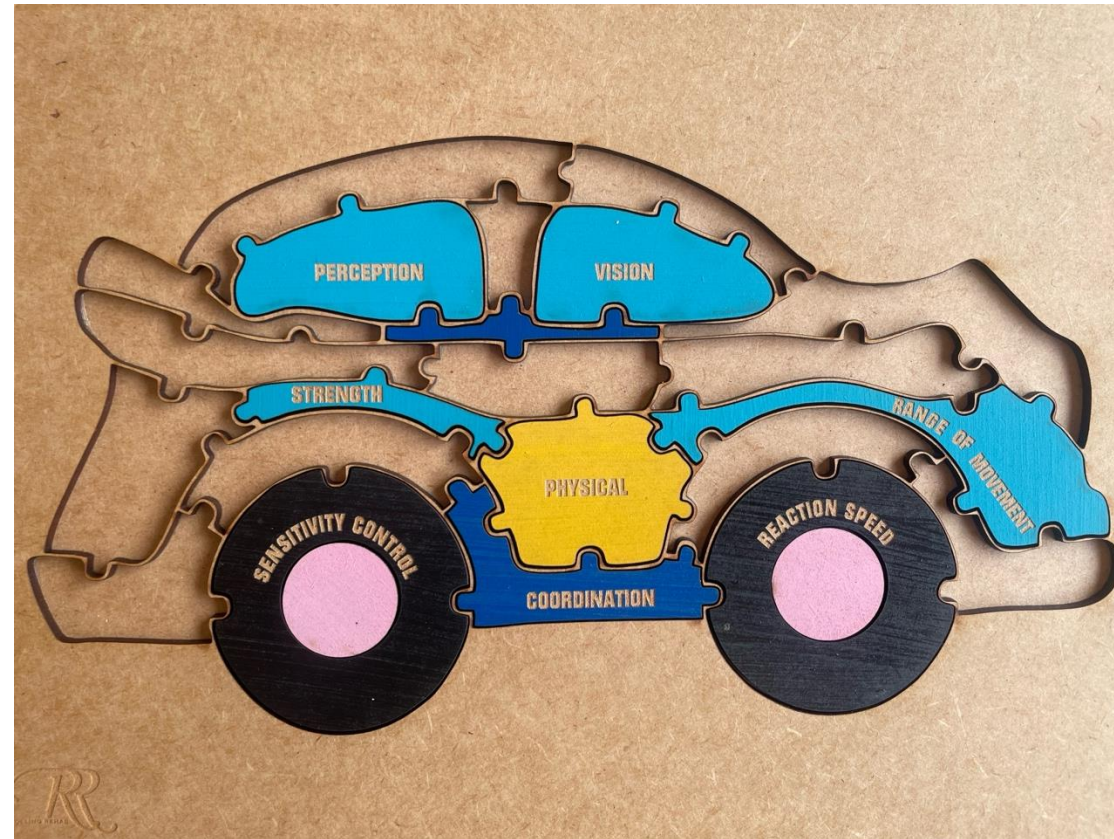
# Skills & abilities needed for driving

- **Vision:**

- Visual acuity: adequate vision & focus to see what's on the road & to identify road signs
- Scanning ability: scan environment, pick up what is important and ignore what is irrelevant
- Contrasts: driving into the sun, misty & rainy situation
- Peripheral Vision: pick up movements of other vehicles, motorcycles, pedestrians on the sides of the vehicle

# Skills & abilities needed for driving

- Perception



# Skills & abilities needed for driving

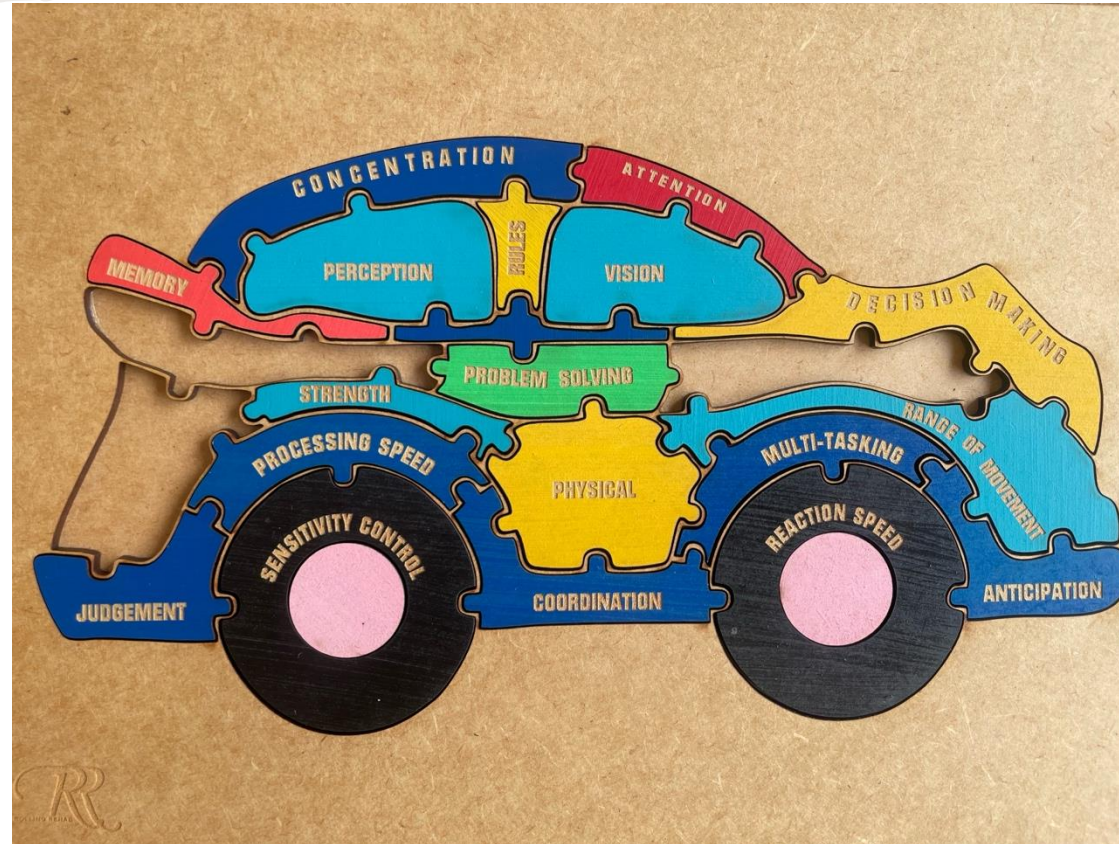
- **Perception:**

- Brain's ability to interpret info coming in from our eyes
- Understand objects or signs that may be partially blocked
- Recognising position and size of your vehicle in relation to other vehicles and road markings (lanes)
- Interpreting individual pieces of info from a busy background which is constantly changing as the car moves



# Skills & abilities needed for driving

- Cognition



# Skills & abilities needed for driving

- **Cognitive functioning:**

- Concentration & attention: maintain concentration for the full time you are driving & pay attention to what is happening on the road
- Problem-solving: drivers are required to problem solve all the time eg: which route to take when there's traffic, what to do if their usual route is blocked by an accident, when to fill up with fuel, what to do if they hear a knocking sound on the car

# Skills & abilities needed for driving

- **Cognitive functioning:**

- Decision-making: drivers constantly make decisions while driving about route, speed, when to overtake, when to go through an amber light and when to stop
- Judgement: of distance, speed, amount of space. Judgement forms part of the decision-making process
- Processing speed & multitasking: be aware & respond to multiple stimuli at the same time. If processing speed is slow then you may have inadequate multitasking for driving

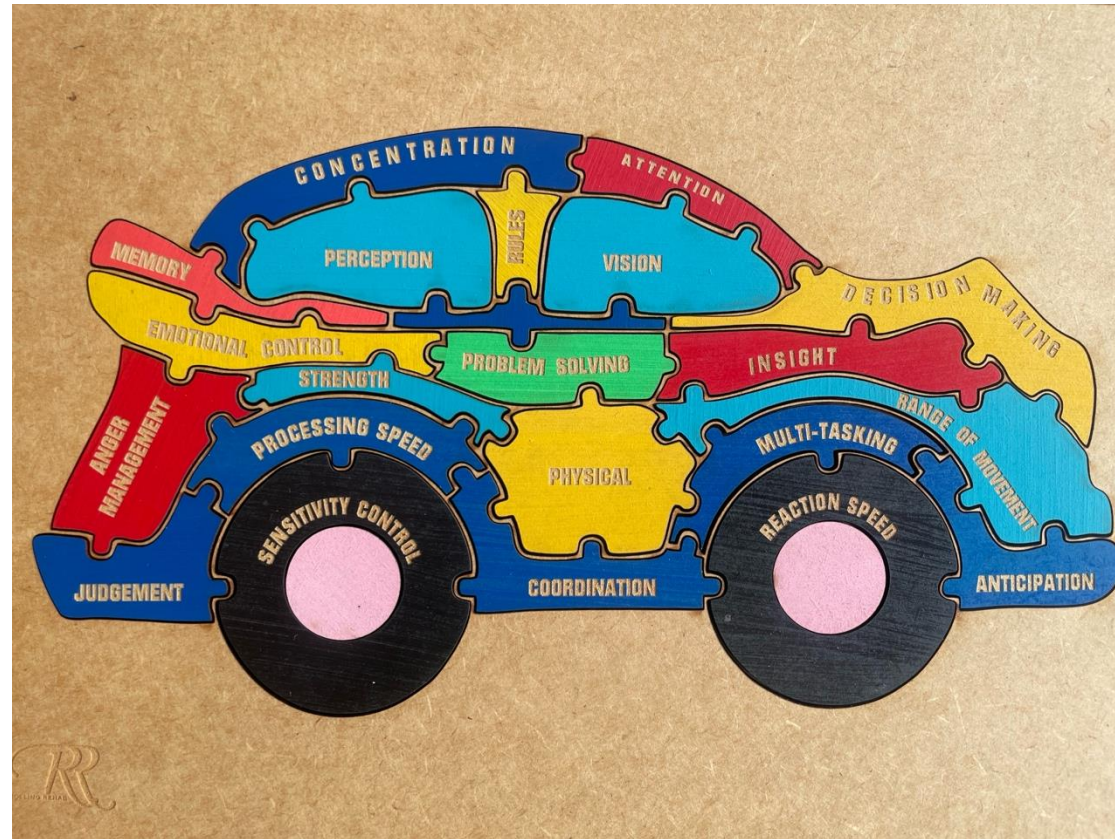
# Skills & abilities needed for driving

- **Cognitive functioning:**

- Anticipation: ability to anticipate what other vehicles are going to do based on rules of road and reading 'body language' of other vehicles
- Memory: various types of memory used when driving eg: remembering rules of road, where you are going, how the vehicle controls work etc. Need good working memory to retain info about observations & the impact on decisions to make a response to the observation.

# Skills & abilities needed for driving

- Behaviour



# Skills & abilities needed for driving

- **Behavioural Control:**

- Emotional control: regulating emotions, angry drivers are as dangerous as nervous driver
- Anger management: essential to stop road rage incidents from happening
- Insight: being aware of own limitations so you can compensate for them & recognising impact of own driving behaviours on other road users

# Signs of reduced skills with Dementia

- You can assess an individual's level of functioning by observing their day-to-day behaviour outside of a motor vehicle
- Some signs that a person no longer has the necessary skills to drive safely are:
  - Has become less coordinated
  - Has difficulty judging distance and space
  - Gets lost or feels disoriented in familiar places
  - Has difficulty engaging in multiple tasks

# Signs of reduced skills with Dementia

- Signs Cont.

- Has increased memory loss, especially for recent events
- Is less alert to things happening around him or her
- Has mood swings, confusion, irritability
- Needs prompting for personal care
- Has difficulty processing information
- Has difficulty with decision-making and problem solving







# Driving behaviours with Dementia

- Some of the common warning signs:
  - Drives too slowly
  - Stops in traffic for no reason or ignores traffic signs
  - Becomes lost on a familiar route
  - Lacks good judgment
  - Has difficulty with turns, lane changes, or highway exits
  - Drifts into other lanes of traffic or drives on the wrong side of the street

# Driving behaviours with Dementia

- Common warning signs cont.
  - Signals incorrectly or does not signal
  - Has difficulty seeing pedestrians, objects, or other vehicles
  - Falls asleep while driving or gets drowsy
  - Parks inappropriately
  - Gets ticketed for traffic violations
  - Is increasingly nervous or irritated when driving
  - Has accidents, near misses, or “fender benders”

# Driving Cessation

-  driving skills/abilities →  deterioration driving behaviour →  fit to drive  driving cessation
- This can be a gradual process where restrictions are slowly implemented, or the driver is aware and stops out of their own choice
- Some continue to drive despite decreased ability and resist driving cessation
- It becomes the family/care givers who need to deal with making this decision

# Driving Cessation

- Not doing it “to be mean”, but because they love the driver and have their safety and best interest at heart
- Unlikely they will accept alternative transport options when they have just been told they should stop driving
- They feel there is no reason to consider alternative options because they believe they can still drive
- Once they have reached a point of acceptance, they may accept the alternative options that they previously refused

# Driving Cessation

- Being unable to drive can be experienced as a huge loss
- Loss of independence, freedom, identity, purpose, activity participation and social integration.
- Grieving process with stages that lead to acceptance
- Denial → anger → bargaining → depression → acceptance

# Driving Cessation

- **Denial** – “I have been driving for 50 years and have not caused an accident”
- **Anger** – “Who are you to tell me I can’t drive!”
- **Bargaining** – “I will only drive 5km to the local shop”
- **Depression** – “I might as well be dead if I can’t drive”
- **Acceptance** – “I like Clive, I will let him drive me around”

# Alternative transport options

- Depends on many variables – support network, resources, level of impairment (level of assistance needed)
- Options include:
  - Lifts from family & friends
  - Hired driver
  - Driving services - Uber, Bolt etc
  - Public transport – bus, train, mini-bus taxi

# Reference & resource list

- Korner-Bitensky, N., Kua, A., von Zweck, C., & Van Benthem, K. (2009). Older driver retraining: an updated systematic review of evidence of effectiveness. *J Safety Res*, 40(2), 105-111. <https://doi.org/10.1016/j.jsr.2009.02.002>
- Mazer, B., Chen, Y. T., Vrkljan, B., Marshall, S. C., Charlton, J. L., Koppel, S., & Gélinas, I. (2021). Comparison of older and middle-aged drivers' driving performance in a naturalistic setting. *Accid Anal Prev*, 161, 106343. <https://doi.org/10.1016/j.aap.2021.106343>
- Molnar, L. J., Eby, D. W., Charlton, J. L., Langford, J., Koppel, S., Marshall, S., & Manson-Hing, M. (2013). Reprint of "Driving avoidance by older adults: Is it always self-regulation?". *Accid Anal Prev*, 61, 272-280. <https://doi.org/10.1016/j.aap.2013.07.004>
- Robertsen, R., Lorås, H. W., Polman, R., Simsekoglu, O., & Sigmundsson, H. (2022). Aging and driving: A comparison of driving performance between older and younger drivers in an on-road driving test. *Sage Open*, 12(2), 21582440221096133.



# Reference & resource list

- The Make Up of a Driver Puzzle – Caroline Rule, Rolling Rehab
- Is it time to stop driving - Ulla Worthman, FOCUS, August 2024
- Driver Fitness Coalition - <https://driverfitness.co.za/>
- Family Caregiver Alliance - <https://www.caregiver.org/resource/dementia-driving/>
- Alzheimer Society Canada - <https://alzheimer.ca/en/help-support/im-living-dementia/managing-changes-your-abilities/driving-dementia>

# Thank you

Any Questions?

