

# Parkinson's and Cognitive Decline



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**SEPTEMBER 8, 2021**

# OUTLINE: PD and cognitive decline

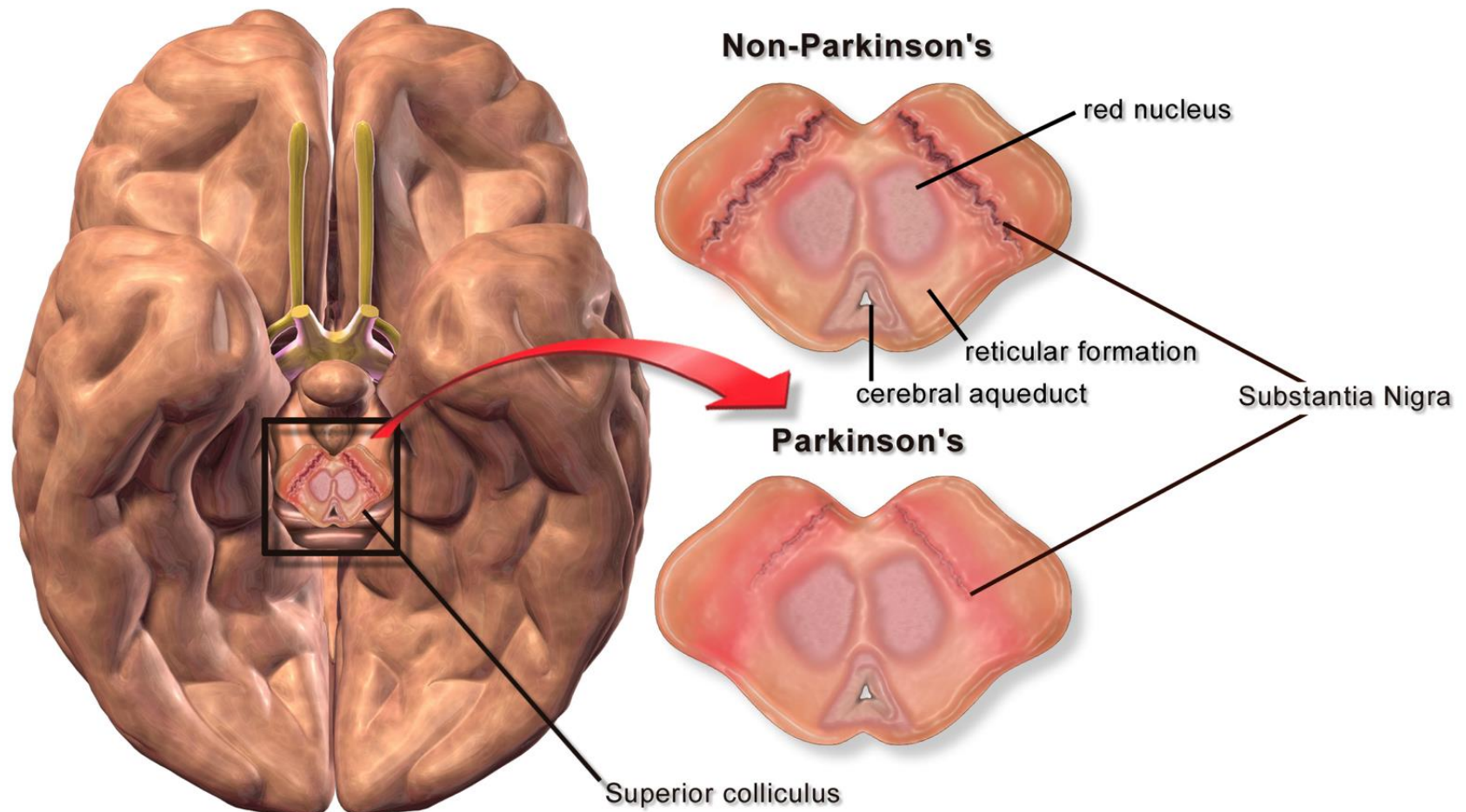


- definitions (including cognition)
- what causes cognitive decline in PD
- what you might notice - signs and symptoms
- how cognition may be assessed and diagnosed
- what else affects cognition
- management (and prevention) of cognitive problems
- driving

# What is Parkinson's disease?



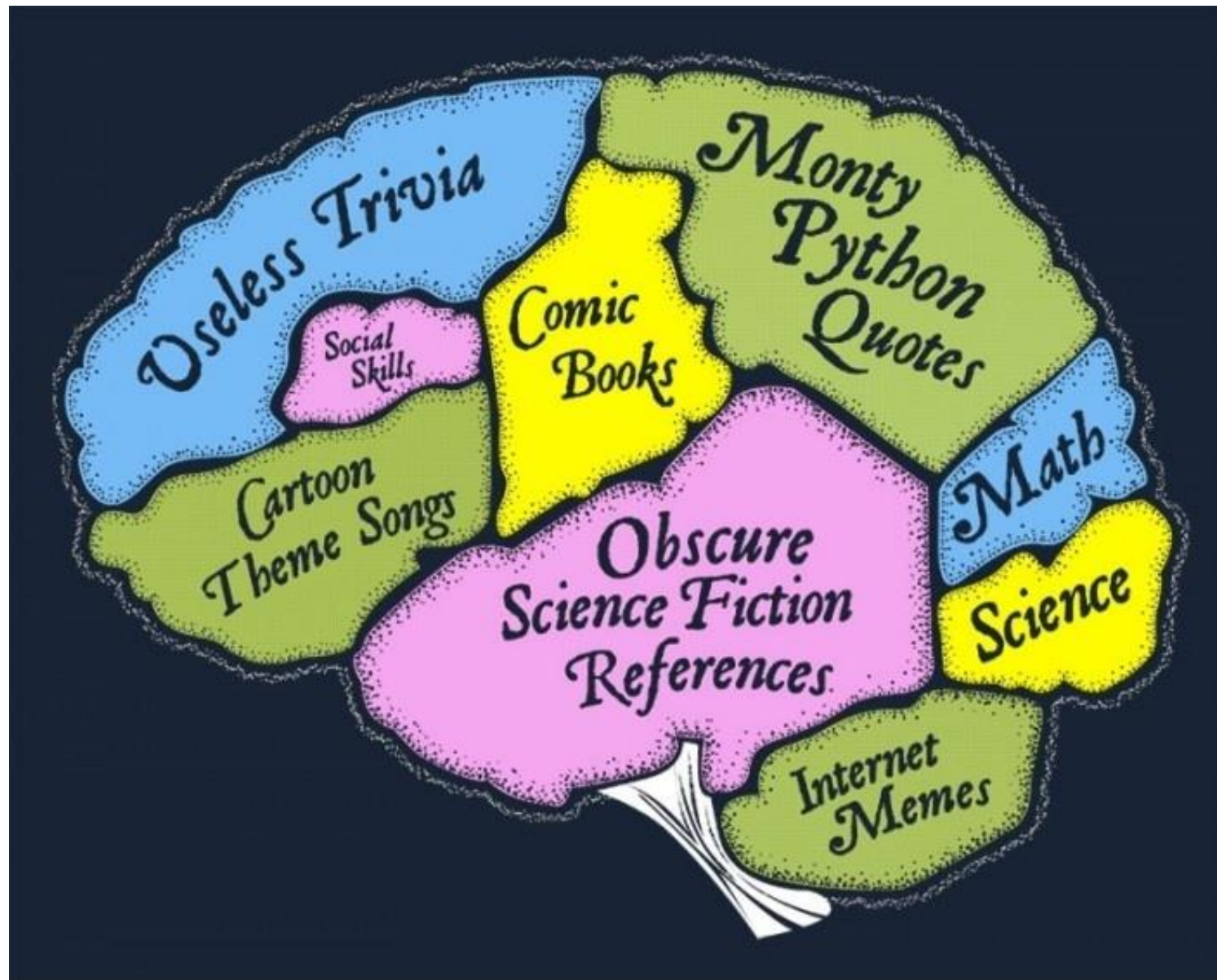
## Parkinsons Disease

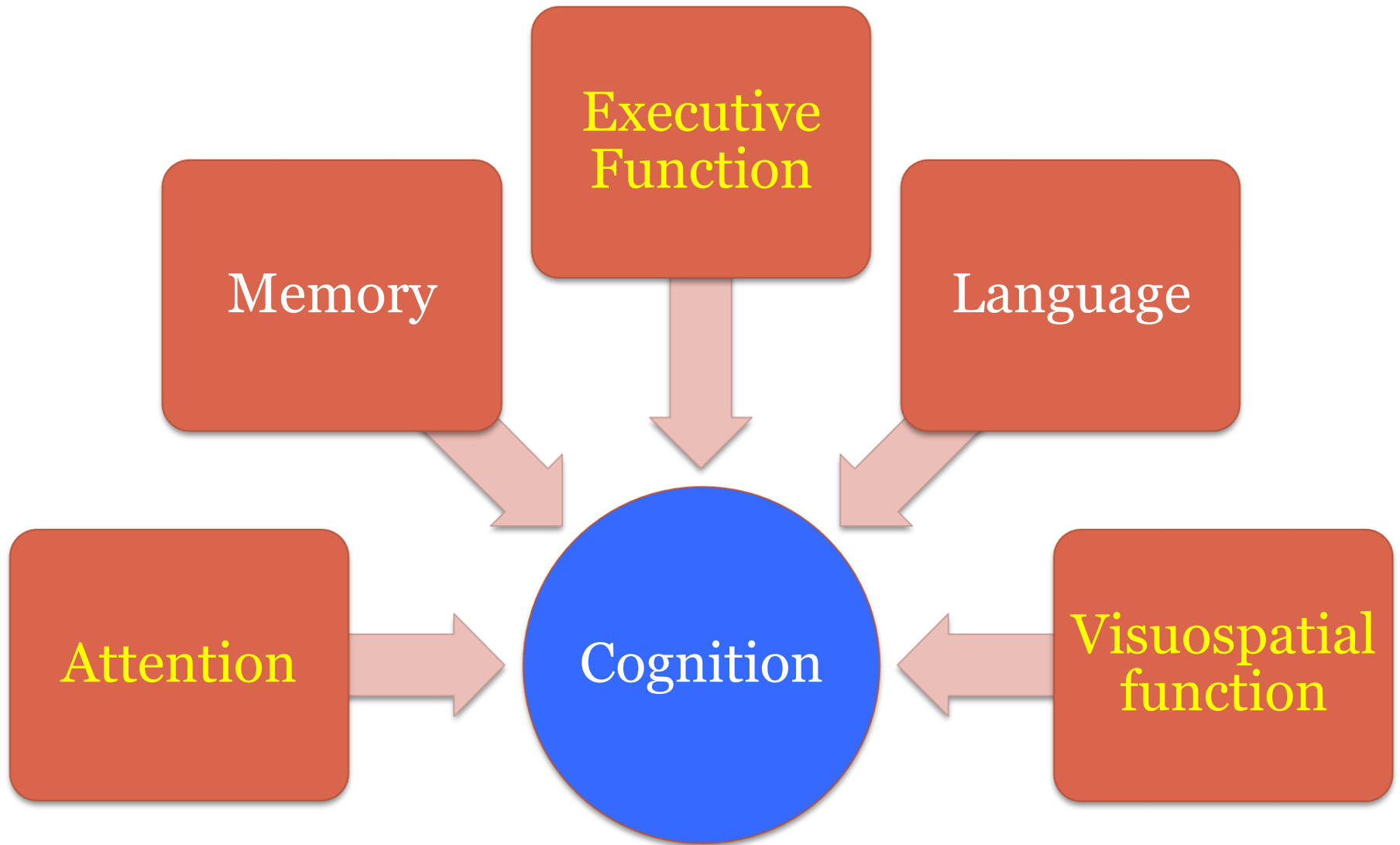


# What is cognition?



- mental abilities that we use to process information and apply knowledge
- mental processes that allow us to perform daily functions such as paying attention, solving problems, and remembering where items are and how to do certain tasks





# MCI vs Dementia



## Mild cognitive impairment

- mild symptoms
- don't impact work or daily activities
- about 30% of people with PD experience MCI
- could stay the same, get better or worsen over time to dementia

## Dementia

- problems in more than one cognitive domain
- cognitive problems significantly impair everyday activities of both the person experiencing them and their care partner
- typically develops years after the initial onset of PD

# PD and cognition



- at time of diagnosis, 30% have mild cognitive impairment
- about 40% of people with PD develop dementia
- not everyone with PD experiences dementia
- NOT 'just ageing' or 'being stubborn' or 'not listening' etc.



# Risk factors for dementia

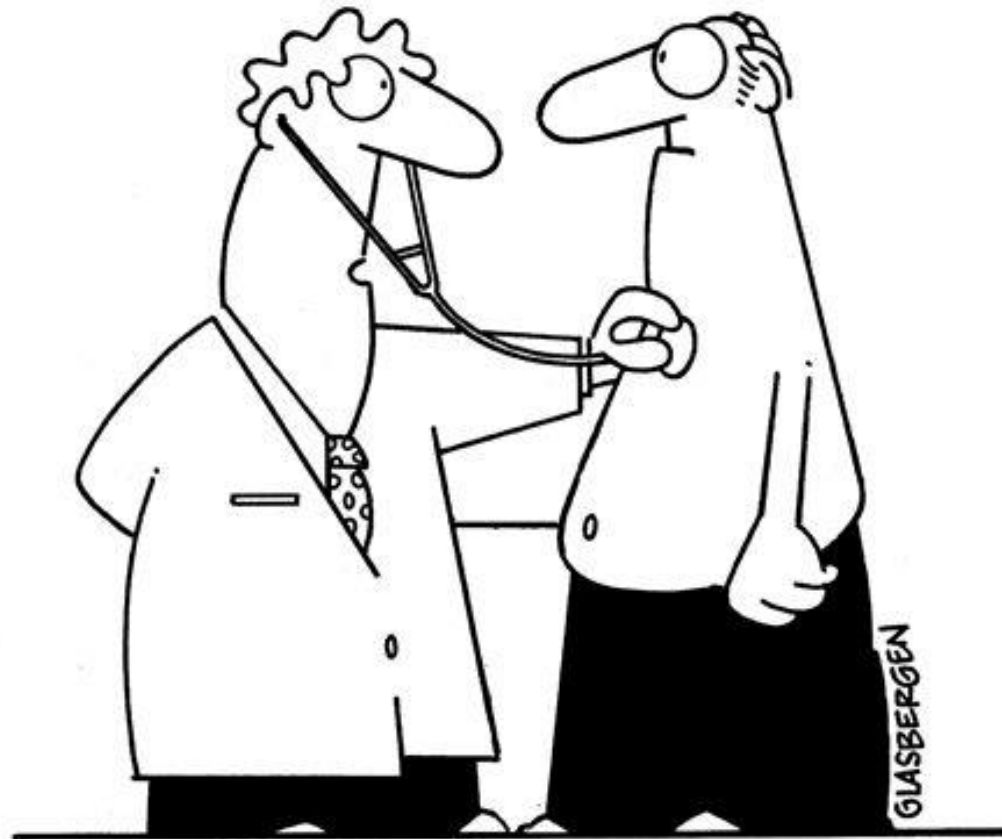


- a longer course of PD
- significant movement problems (more walking and balance problems rather than tremor)
- mild cognitive impairment
- seeing things that aren't there (hallucinations) or believing things that aren't true (delusions)

# PDD vs DLB



- PDD – PD dementia
  - typically develops years after the initial onset of PD
- DLB – dementia with Lewy bodies
  - when dementia develops before or at the same time as the Parkinson's disease motor symptoms
- Alzheimer's – separate disorder with different pathology



**"I hear reggae rhythms, disco drums, thumping hip-hop,  
toe-tapping western swing, and 80's techno beats.  
I think your pacemaker is stuck on 'shuffle'!"**

# What causes cognitive decline in PD

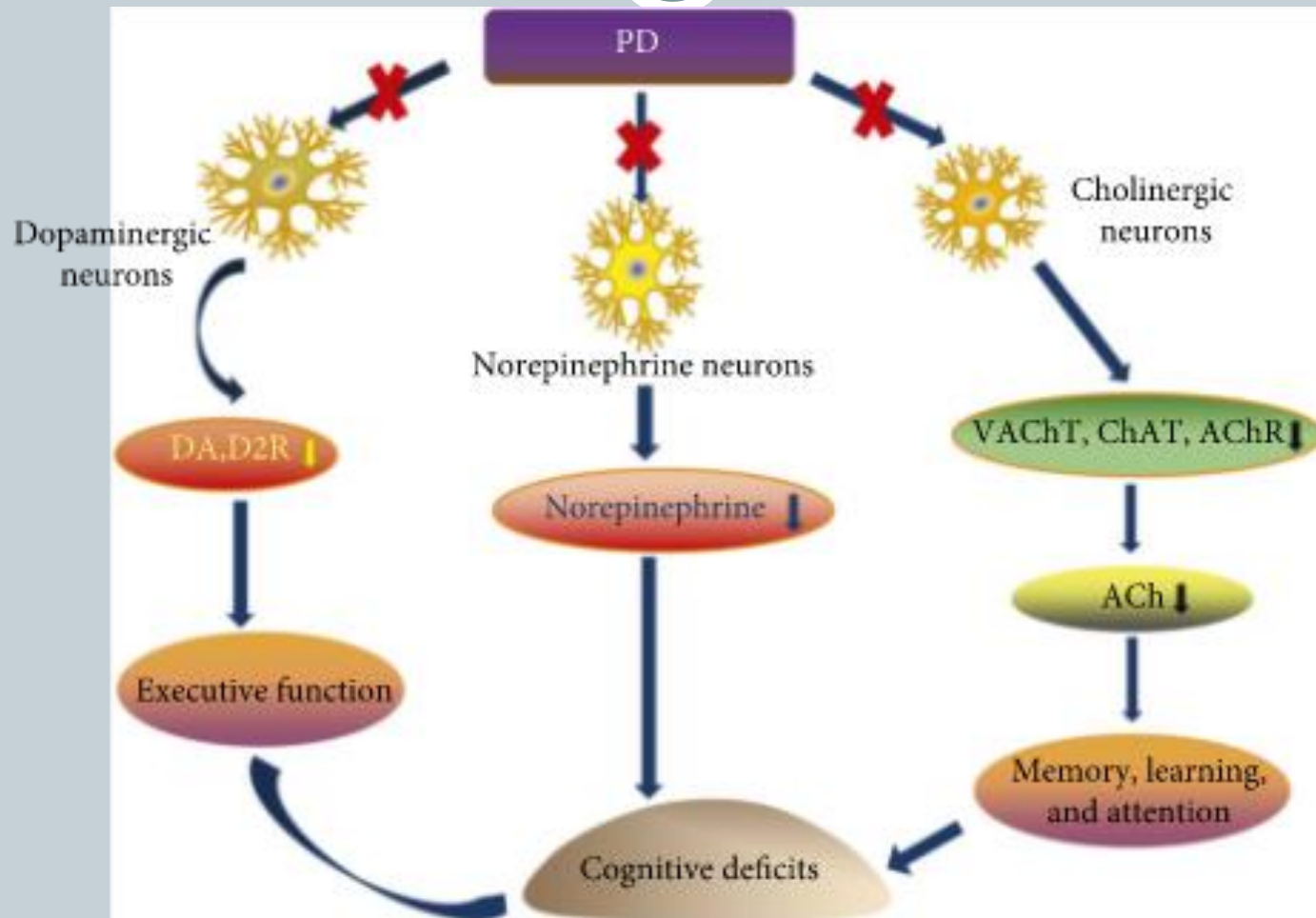
## Brain signaling

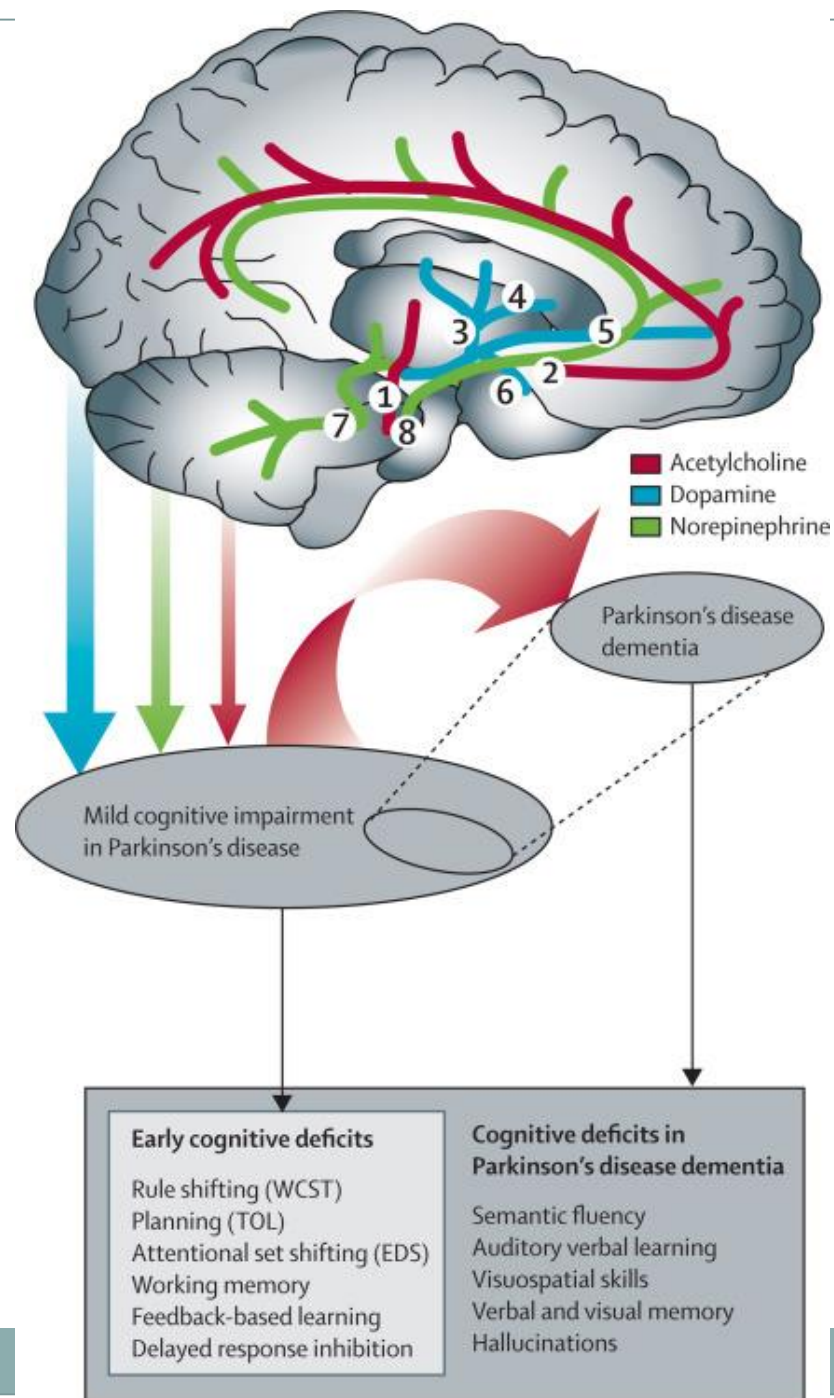


## Brain cells



# What causes cognitive decline in PD: brain signaling





# What you might notice



Executive  
Function

Memory

Language

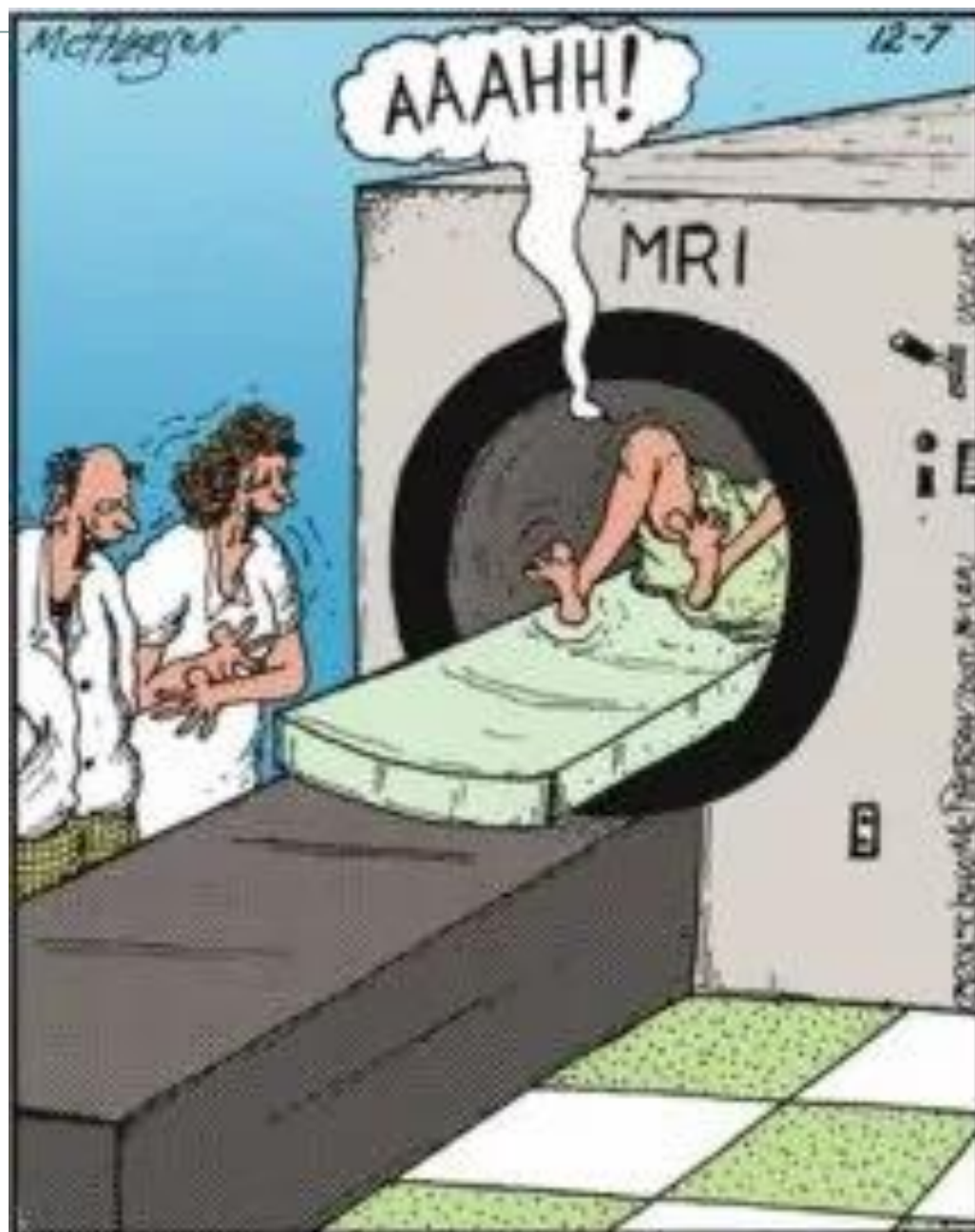
Attention

Cognition

Visuospatial  
function







"I tell ya, work has gotten to be so much more fun since we hung that rubber spider in there."



# Assessment and Diagnosis



History

**MONTREAU COGNITIVE ASSESSMENT (MCA)**  
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NAME: \_\_\_\_\_ Education: \_\_\_\_\_ Date of birth: \_\_\_\_\_  
Sex: \_\_\_\_\_

**MEASUREMENTS / EXECUTION**

Color-Cube: \_\_\_\_\_

Color-Cube (Delayed Memory): \_\_\_\_\_

**RECALL**

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_ 4. \_\_\_\_\_ 5. \_\_\_\_\_

**MEMORY**

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_ 4. \_\_\_\_\_ 5. \_\_\_\_\_

**ATTENTION**

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_ 4. \_\_\_\_\_ 5. \_\_\_\_\_

**LANGUAGE**

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_ 4. \_\_\_\_\_ 5. \_\_\_\_\_

**ABSTRACTION**

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_ 4. \_\_\_\_\_ 5. \_\_\_\_\_

**DETAILED MCA**

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_ 4. \_\_\_\_\_ 5. \_\_\_\_\_

**Optional**

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_ 4. \_\_\_\_\_ 5. \_\_\_\_\_

**ORIENTATION**

1. \_\_\_\_\_ 2. \_\_\_\_\_ 3. \_\_\_\_\_ 4. \_\_\_\_\_ 5. \_\_\_\_\_

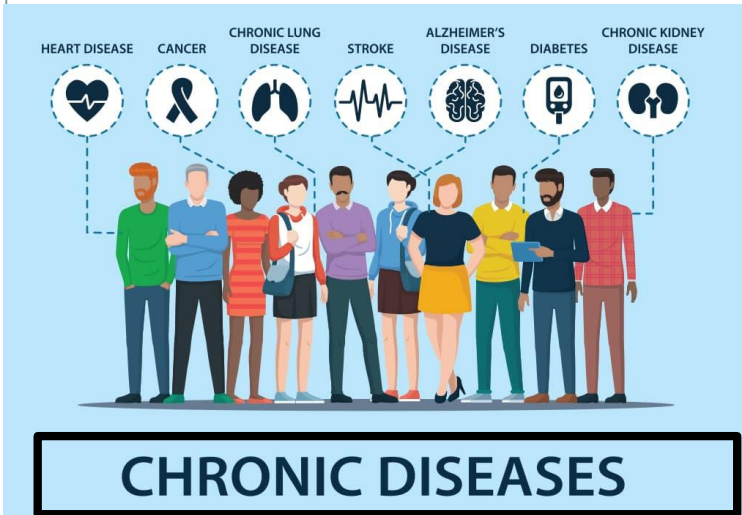
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Cognitive testing

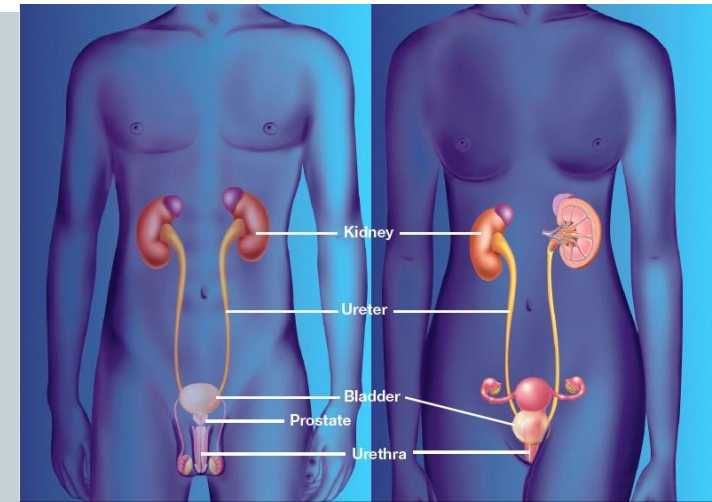
Look for other causes



# Don't just blame the PD.... what else affects cognition?



Medication side effect



Acute changes  
such as infection

Hearing or vision impairment



# Management Approach to Cognitive Impairment in PD

## Medical

review  
medications

look for & treat  
other acute or  
chronic  
illnesses

address hearing &  
vision impairment

medications for  
cognition

## Non- medication approaches

physical  
exercise

mental  
exercise

social activity

nutrition

stress  
reduction

sleep

# Medications for Cognition



## Cholinesterase inhibitors

- work on cholinergic system
  - donepezil (aricept)
  - rivastigmine (exelon)
  - galantamine (razadyne)
  - Side effects include nausea, diarrhea, possibly worsened tremor
  - Not recommended if heart block, syncope or significant bradycardia. Monitor ECG.

## Memantine

- works on glutamate
  - side effects include sedation, muscle cramps, headaches, dizziness, fatigue and insomnia

# Medications for Cognition



- medications – play a small role overall
- indicated for mild to moderate dementia
- rivastigmine is the only one FDA-approved to treat PDD
- Canadian guidelines:
  - can use rivastigmine or donepezil for PD dementia
  - can consider using galantamine for PD dementia (if not responding or side effects on the others)
  - memantine can be added or substituted if cholinesterase inhibitors are not tolerated or lack efficacy

# Medications for Cognition



- possible outcomes of using these medications:
  - may temporarily boost cognition; lessen behavioral changes, such as agitation; decrease hallucinations and delay need for long term care
  - stability
  - no effect with continued decline

# Psychosis

## Treatments:

Quetiapine (seroquel)

Clozapine

Pimavanserin (nuplazid)- not in  
Canada yet



- fewer or less severe hallucinations
- calmer behaviour
- defer relocation



- sleepiness
- confusion
- slow movements
- cardiac



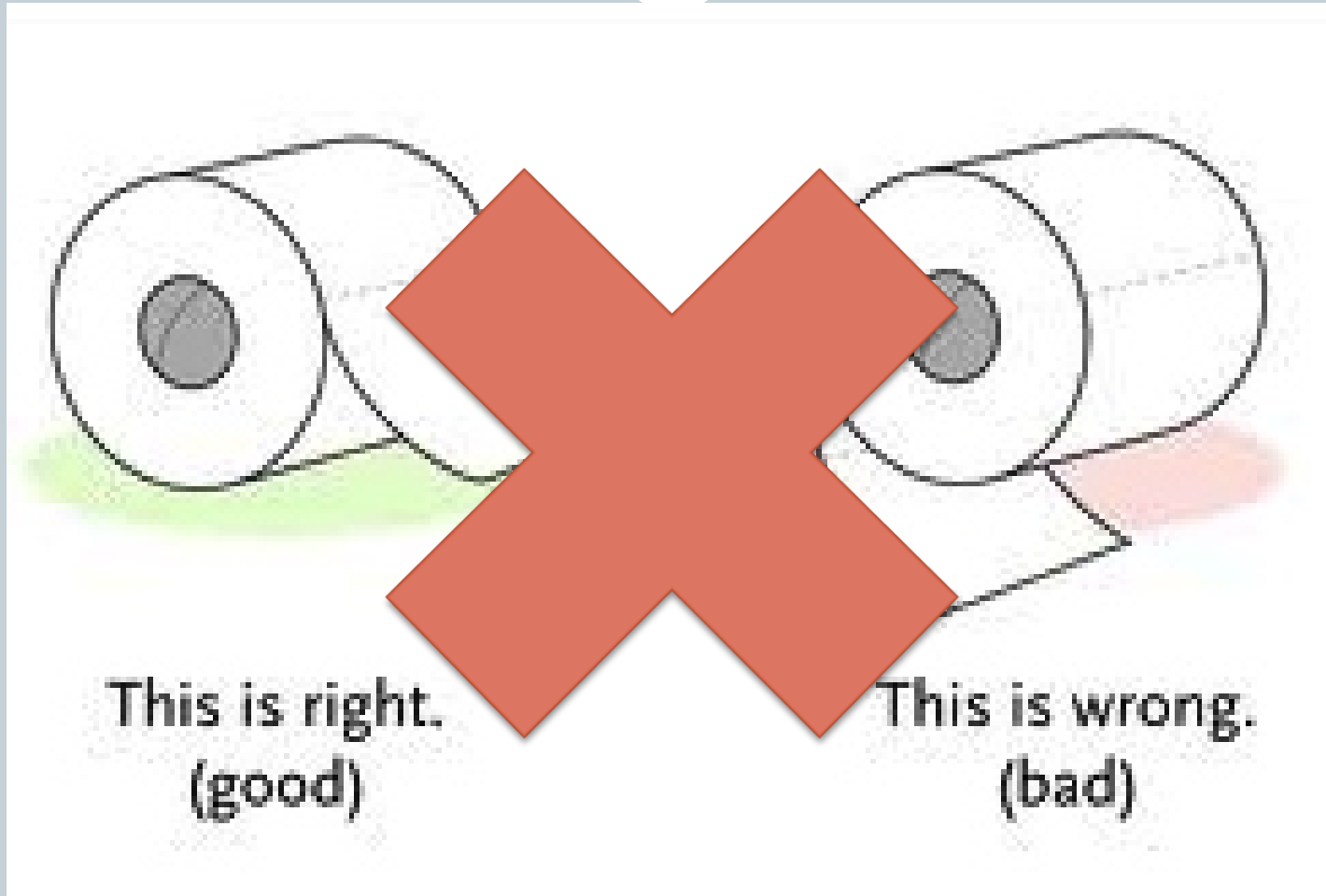


# Drugs aren't everything





# Mental exercise

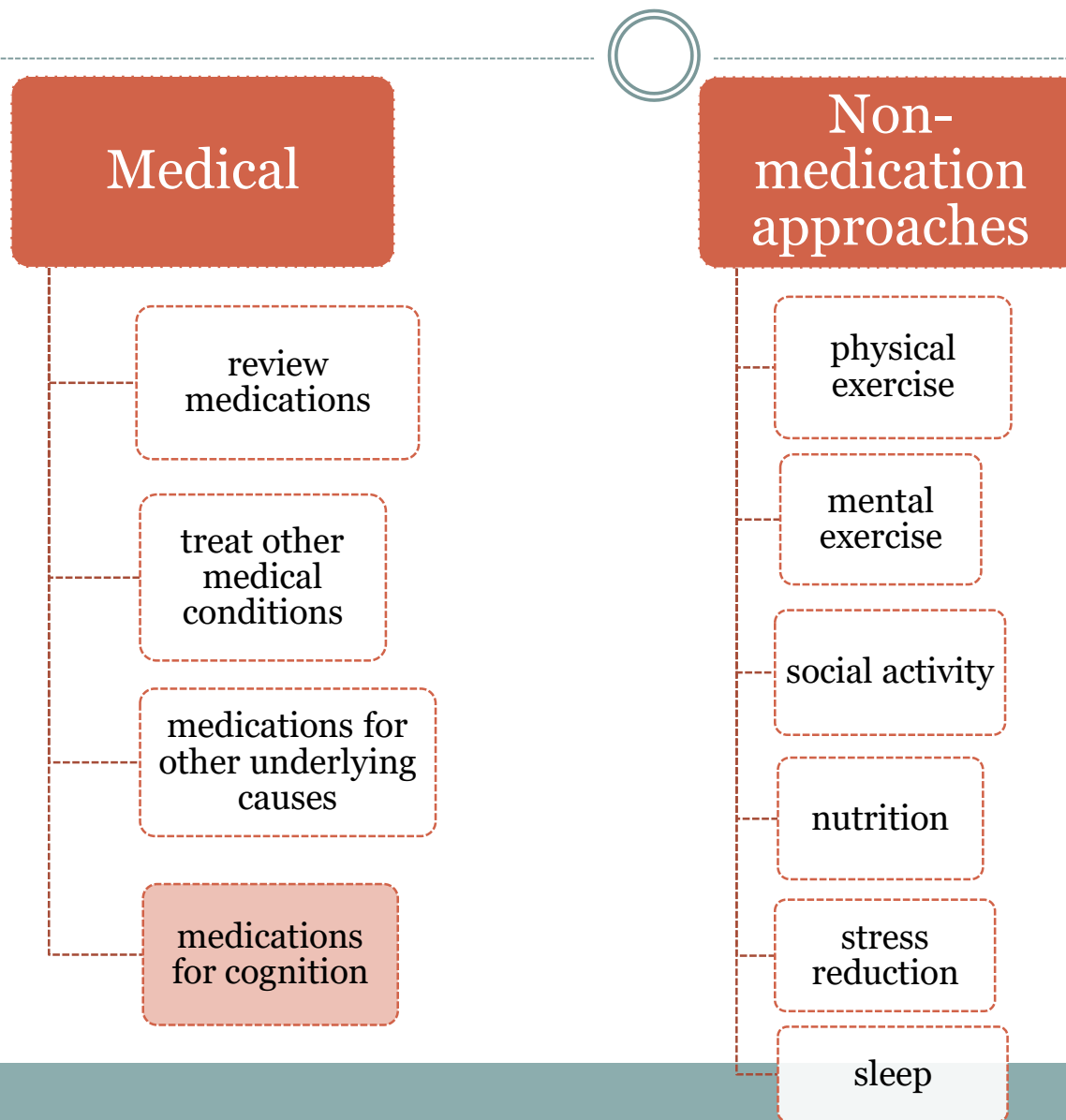


# Non-medication management



- Tune in next 2 weeks for talks from OT and SLP which will include practical suggestions
  - pill reminders, clock alarms
  - break down activities into simple steps
  - “to do” checklists and daily planners
  - regular routine for daily activities and exercise is important
  - household items such as utensils, glasses, and keys should be kept in the same place all the time, and drawers can be labeled
  - patients may respond better when given choices, cues, or yes-no answers, particularly if word-finding difficulties or slowed thinking is present

# Management Approach

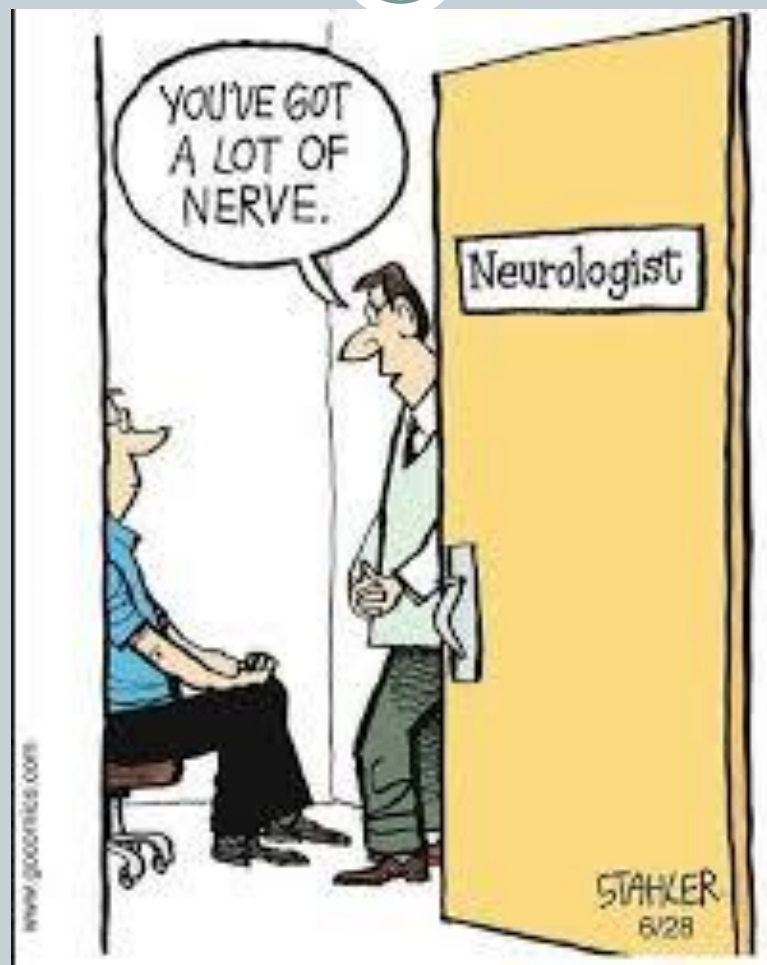


# Driving



- driving
  - driving involves many different cognitive processes including:
    - ✦ attention
    - ✦ executive function
    - ✦ visuospatial abilities
    - ✦ processing speed
    - ✦ motor demands
  - an important safety issue to address





# THANK YOU





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