Beyond Movement

Brain Health, Cognition, and Whole Person Care in Parkinson's Disease

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Disclosures

I have no potential conflicts of interests in relation to this presentation.

There are no financial disclosures.

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Objectives

1. Identify **common cognitive changes** associated with movement disorders and how they defer from typical memory disorders.
2. Identify **risk factors and early signs of cognitive change.**
3. Apply strategies to promote **brain health.**
4. Recognize the importance of **person-centered care** involving the patient and the care partner.
5. Demonstrate **communication strategies** that promote well-being.

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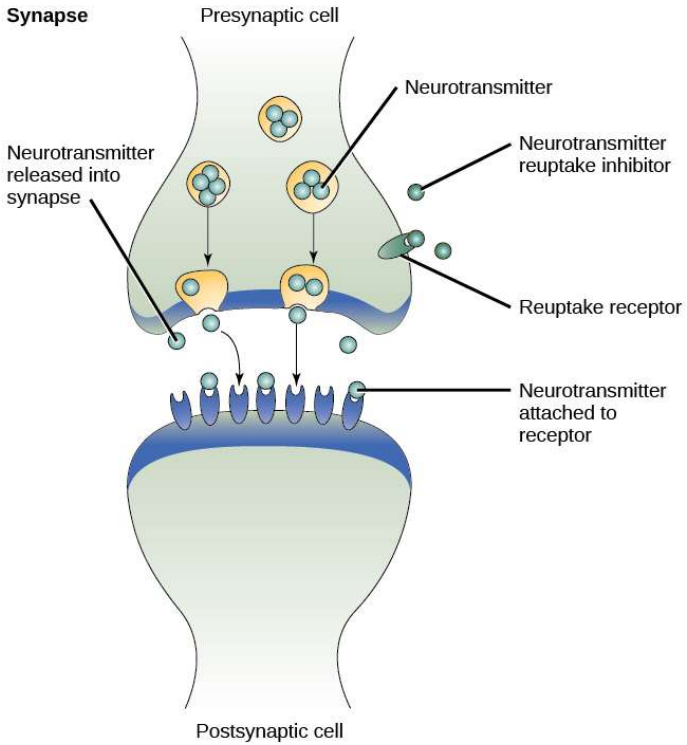
Non-Motor Symptoms of Movement Disease

Movement disorders like Parkinson's Disease often have imbalance in dopamine pathways. Dopamine deficiencies can also disrupt related neurochemical balance, such as the interplay between acetylcholine, GABA, and serotonin.



Cognitive Change

- Slower processing speed and slower attention (temporal and frontal lobes)
- Poor executive function, cannot organize or make decisions as efficiently (frontal lobe)
- Difficulties problem solving or integrating new information (parietal lobe)

Behavioral Change

- Impulsivity, reactivity, emotional sensitivity (frontal lobe)
- Apathy, depression, and anxiety (amygdala and temporal lobe)
- Initiation, motivation, and inertia (frontal lobe)

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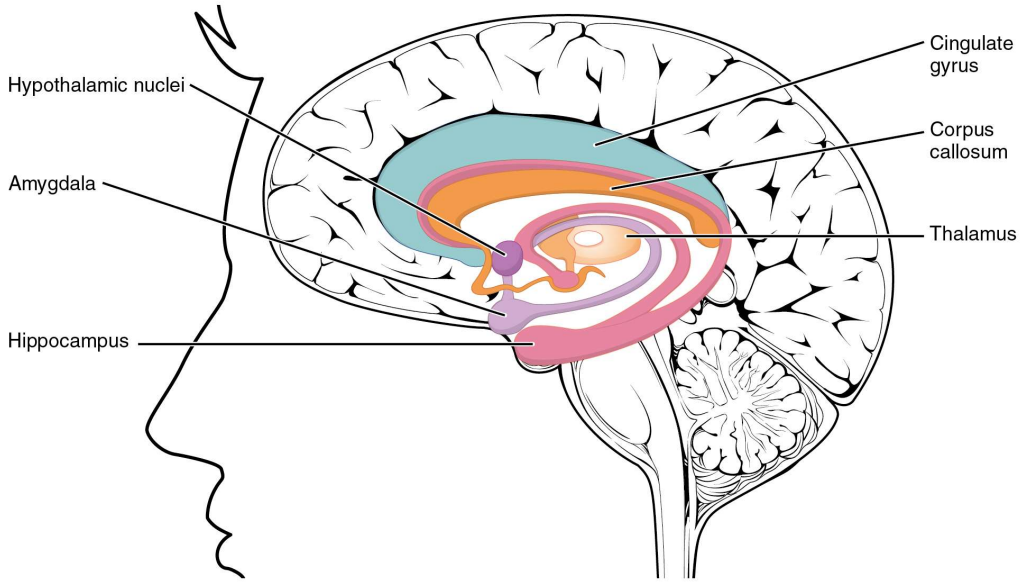
Non-Motor Symptoms of Movement Disease

On neuropsychological testing, a patient with PD usually has a non-amnestic profile:

- Short term memory is intact, but working memory and attention can be impaired
  - *For example, they can provide detailed history of recent events, but lose train of thought, and can't focus on the current task. Stop midway in communication. May look like they were unfocused or uncaring.*
- Slower to learn and understand directions, may need repetition of instructions
- "Input" problem



In contrast, typical amnestic memory disorders manifest as:

- *Rapid forgetting, repeating stories*
- *Tangential, confabulating, avoiding fine details, speaking in broad strokes*
- *Social cues and interactions usually intact*
- *"Storage" problem*

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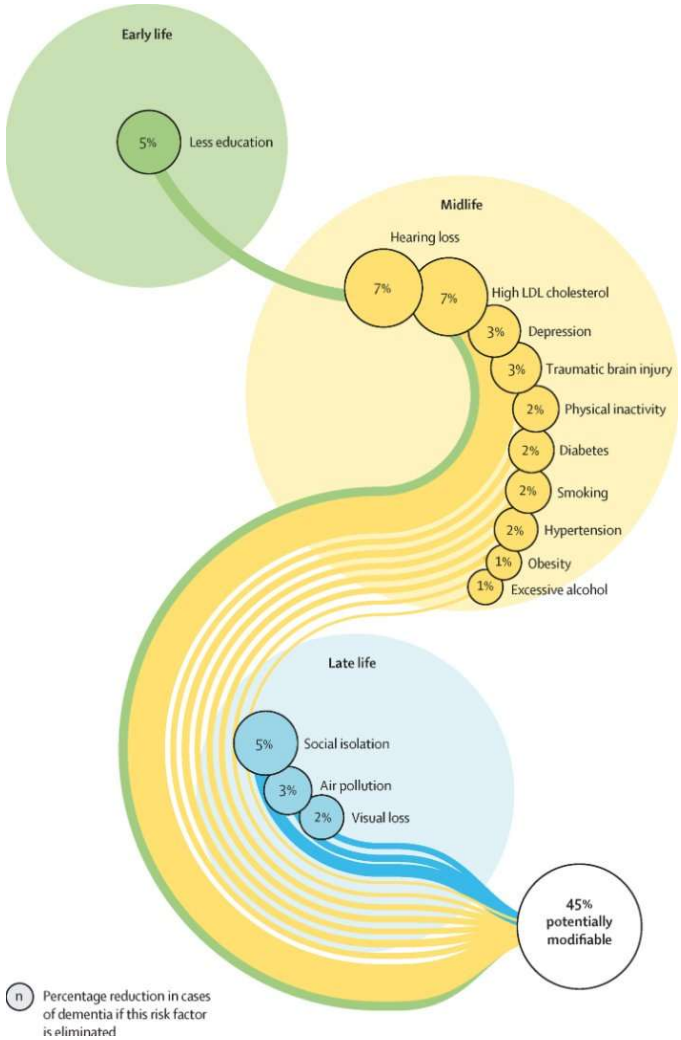
Risks for Cognitive Change



Not everyone with a movement disorder has a cognitive disorder, but there is increased prevalence in patients with:

- History of head injury or concussion
- Co-morbid vascular disease or stroke
- Metabolic dysfunction, diabetes, hypertension, hyperlipidemia
- Unhealthy lifestyle, sedentary, tobacco or alcohol dependence
- Advanced age (over 65 years old)
- Sensory impairments, like hearing loss or vision loss
- Mental health co-morbidity, particularly untreated depression

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Functional Changes

Cognitive and behavioral changes are often reported by the caregiver, because the brain is unaware of the symptoms (anosognosia):

- Missed bill payments, small unusual mistakes
- Forgot appointments, but remembered a few hours later. Often prepares for the appointment for many days, and then it slips out of their mind.
- Medications are running out earlier than supposed to, missed or doubled medications
- Eating the same microwave meals over and over, no initiative to create new dishes or try new things
- Thrown off when the routine changes, less participation in routine hobbies and social events
- Mistakes when driving, merging without looking, getting lost in a familiar place

It is important to also ask about hallucinations, delusions, sleeping change, appetite change. Many of these related symptoms can help identify progressive cognitive dysfunction that can lead to dementia.

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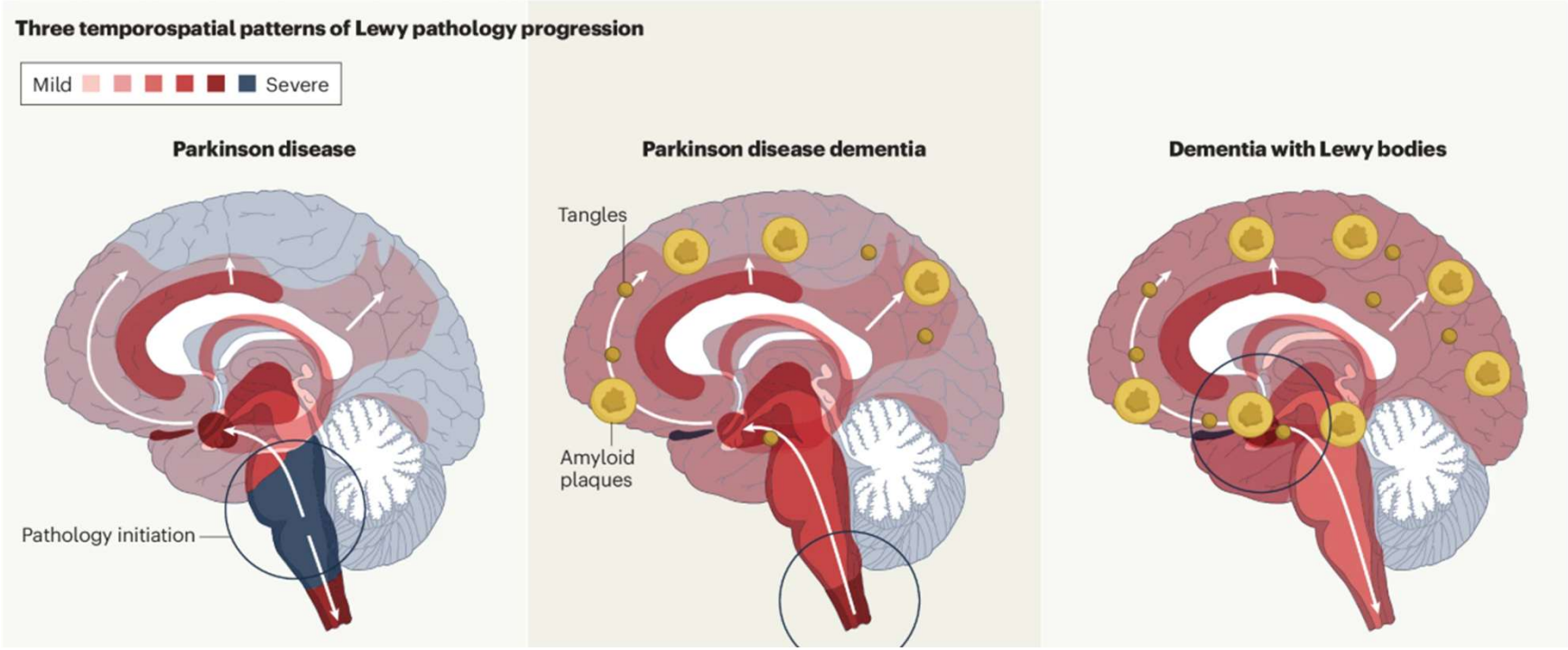
Dementia with Lewy Bodies

In some situations, the Lewy Bodies, or synuclein deposits responsible for Parkinson's Disease, can be associated with more rapidly progressive cognitive and functional decline.

This is dementia.



Fu, Y., Halliday, G.M. Dementia with Lewy bodies and Parkinson disease dementia — the same or different and is it important?. *Nat Rev Neurol* **21**, 394–403 (2025). https://doi.org/10.1038/s41582-025-01090-x

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Dementia with Lewy Bodies

Lewy Body Disease is a cousin disease to Parkinson's Disease that is often associated with progressive visual hallucinations and cognitive decline.

Parkinson's Disease Dementia

- Motor symptom start the disease 90% of the time, minor behavioral change can be the prodrome in 10%
- Synuclein largely in substantia nigra/midbrain. Severe dopamine cell loss.
- DATScan usually abnormal, CSF alpha synuclein reduced.

Lewy Body Dementia

- Synuclein goes to hippocampus and amygdala, leading to behavioral, emotional, inattentive symptoms early. REMSD, visual hallucinations.
- Not as severe of dopamine loss, but often co-morbid with amyloid (they co-seed each other)
- More likely to have CAA and white matter disease, related to frequent delirium

Progressive supranuclear palsy, corticobasilar syndrome, multisystem atrophy are all movement disorders that can also cause dementia, but are caused by non-synuclein pathologies (tau, TDP-43, prion disease)

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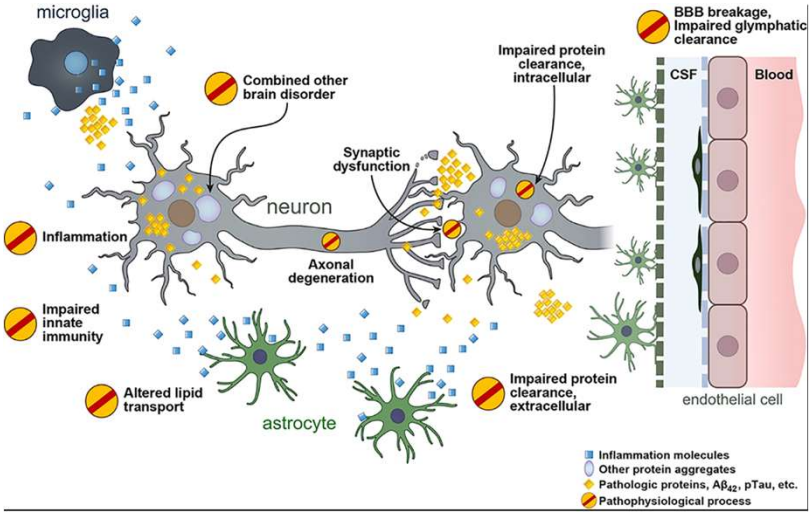
Brain Health

Neurodegenerative disease is never defined by the build-up of just one plaque. Thus, it is difficult to "cure" a multi-system failure.



There are often changes in **amyloid, tau, TDP-43, synuclein, cytokines, BBB, insulin resistance, glucose metabolism** all as part of one clinical phenotype. Treatment and risk mitigation of dementia involves addressing systemic components of brain health.

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Brain Health

1. Social Engagement

Find new ways to connect with others.

– New hobby, new meet-up, volunteer group

- Expressions, idioms, sarcasm, cultural ideas, emotional response, and non-verbal communication.
- Experience different perspectives and ideas

2. Cognitive Engagement

Find new skills or hobbies to learn.

– Travel, read a new book, complete a home project

- Language, communication, problem solving, memory
- Experience new, complex ideas that we are forced to practice and apply

3. Manage Stress

Make the brain feel safe and balanced.

– Too much activity can be stressful. Balance rest, play, work, and allow the brain to process life.

- Process threat and non-threat, allowing a decrease in defense systems
- Finding joy and positivity lessens chemical and physiologic stress signals.

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Brain Health

4. Physical Engagement

Challenging moderate exercises for thirty minutes daily.

- Find an activity that is interesting, but still pushes you to an elevated heart rate
  - Try to incorporate movement into your day, sedentary lifestyles increase illness.
  - Moderate exercises are activities where you cannot hold a comfortable convo

5. Restorative Sleep

Aim for consistent 7-8 hours of sleep nightly.

- Sleep hygiene includes control of stimulating activities, phones, news that precede sleep
  - Aim for 1 hour no screens, 3 hours no exercise, 6 hours no caffeine before bed.
  - Nap no more than 30 minutes during the day.
  - Take natural or prescribed sleep aides to help maintain sleep, magnesium oxide, valerian root, melatonin.

6. Nutrition

Fuel the brain only with nutrition that it needs, limit extra.

- Processed foods, toxins (alcohol, smoking), sugar, add layers of “work for the brain.” Aim for plant-based, low processing, low sugar meal choices.
  - MIND Diet, Mediterranean
  - Supplement vitamins as needed and avoid dehydration. Limit alcoholic and sweet beverages.

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Person-Centered Care

Seeking help for cognitive change is a vulnerable experience for both the patient and the care giver. It is not just another diagnosis; it is a loss of autonomy and personhood.

Anosognosia

A neurological condition in which the patient is unaware of their symptom or condition.

Amnesia

A neurological condition in which the patient is unable to remember

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Person-Centered Care

Dementia places the brain in a state of stress, or defense. The brain with a neurologic condition reverts to its most basic needs and survival tactics.

Stress behaviors can include:

Anxiety

Restlessness or Pacing

Shadowing or Following Everywhere

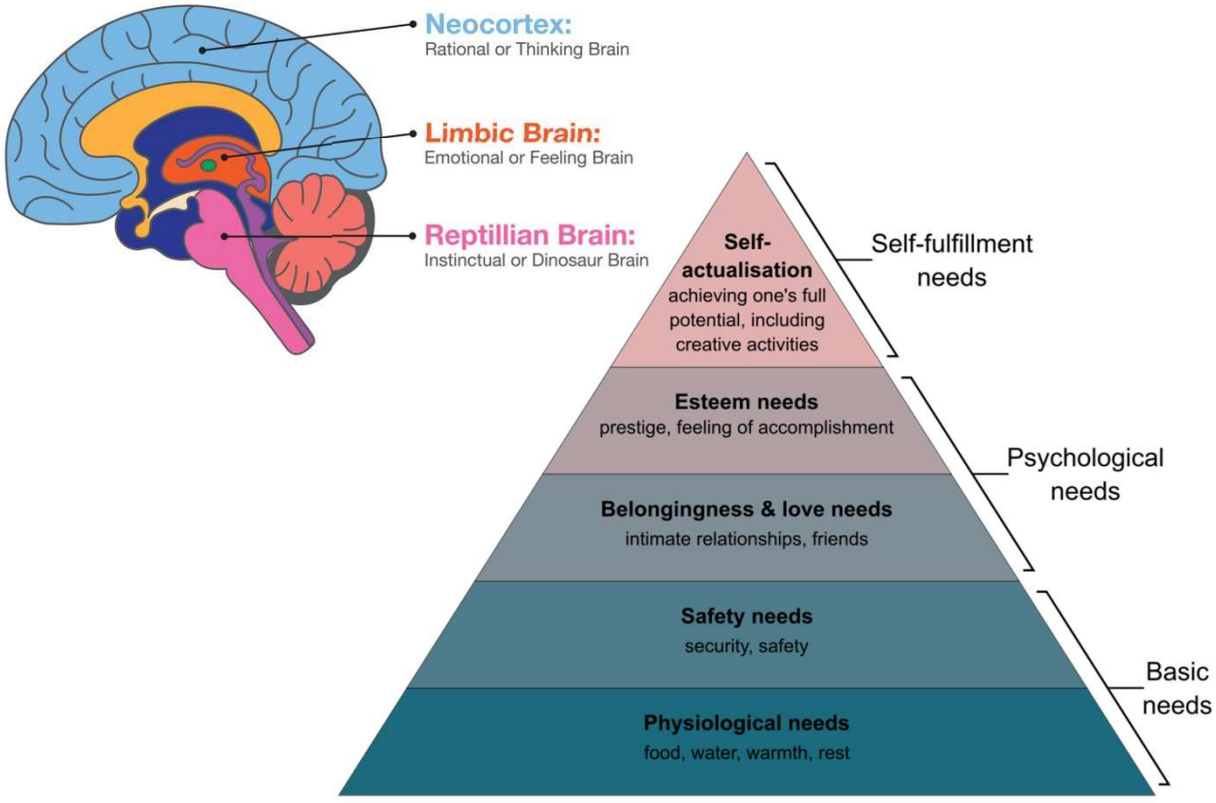
Suspicion or Paranoia

Delusions or Hallucinations

Stubbornness and Resistance

Wandering

Verbal or Physical Aggression



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Person-Centered Care

In situations of stress behaviors, it is difficult to change or correct the person with a neurologic illness (the person on defense). It is more important to change the setting, the context, and the situation around the distressed person.

Recognize Stressors

Unexpected behaviors often relate to unexpected or confusing stressors

Address Physical Needs

Stress is not just psychological, is there a physical change that we can address?

Change the Environment

When we can't change the behavior, we change the trigger or the response.

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Recognize Stressors: First, Learn More About Their World

What just happened?

Did somebody new enter the room?

Was there a loud or unexpected sound?

Is the conversation confusing?

Did this remind them of something?

Is the light too bright?

Is this a difficult task?

Behaviors can be a reaction to unexplained triggers, but here are the common culprits:

Pain or discomfort
Fear or frustration
Loss of control or autonomy
New people or places
Confusing conversation or tasks
Overstimulation or under-stimulation
Lack of information

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Address Physical Needs: Basic survival needs will trump logic.

Is the water too hot or cold?

Are they comfortable in their clothes?

Does their stomach hurt?

Did they not sleep well?

Is something bothering them?

Have they eaten?

Have they taken their meds?

Example: many patients will feel cold, though the room is objectively warm. Get them a blanket anyway.

Remember to focus on their experience and address their physical and psychological feelings.

We all have feelings that don't align with reality, meet the person where they are.

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Change the Environment: After recognizing stressors, and understanding their perspective, now work to change the setting so it doesn't happen again.

Adjust temperature and lighting in the house

Remove clutter and extra lights that cause shadows

Dissolve pills in food or water

Prioritize activities and responsibilities to daytime, before sundown-ing

Surround them with familiar faces and environments as much as possible

Ensure proper sleep cycles and regular meals and water

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Change the Environment: After recognizing stressors, and understanding their perspective, now work to change the setting so it doesn't happen again.

Consider probiotics or prebiotics to help with digestion

Do they need constipation medications or pain pills for comfort?

MIND or Mediterranean Diet to reduce oxidative stress on the brain

Nuts, berries, fruits, leafy vegetables, water, low sugar and low processing

Regular primary care visits to address chronic medical conditions.

Do we need hearing aides or visual aides to reduce confusion?

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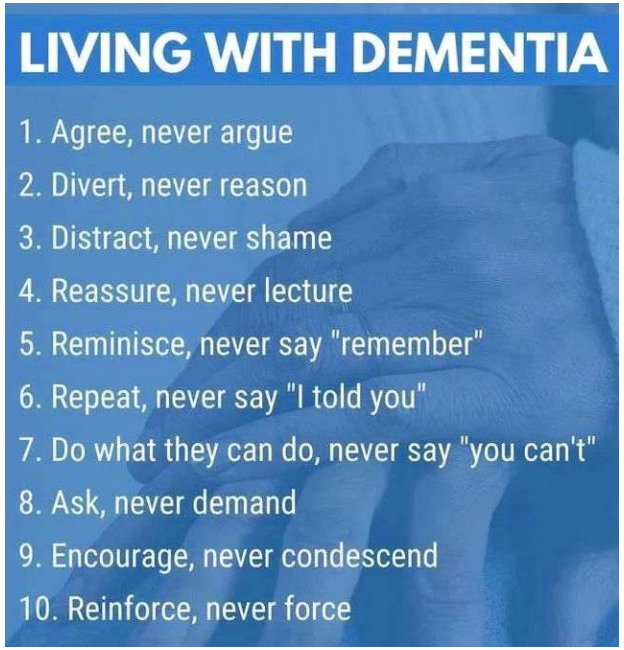
Person-Centered Care

How you communicate with someone with a cognitive impairment is more important than what you say.

Use every opportunity to reduce the distress on the brain.



- **Understand their world and put yourself in their shoes to better relate**
- **Try not to emphasize weakness or inability**
  - *You get to be a passenger!*
- **Focus on finding a common ground**
  - *I also like my food cut up, let me help you*
- **Reassure, reorient, redirect, repeat, RESPECT**
  - *I love how you care about my safety, let's check together to make sure we are safe*
  - *Did you want more cookies? Maybe we can go to the store after I finish these dishes, could you help me?*

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Person-Centered Care: Practice Example #1

How would you help your patient and their caregiver in this situation?

“He is seeing people and strangers entering the house.”

- Protective of their property and family
  - Saw shadows or flickering lights
  - Things around the house are rearranged
- Assumed there was danger
  - It doesn’t make sense
  - Brain filled in the missing spots

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Person-Centered Care: Practice Example #2

How would you help your patient and their caregiver in this situation?

"She wakes up at 2am every night and gets ready, wandering outside!"

- They're used to a schedule; they want to be on time and held accountable
  - They don't think they are at home
  - They think it is daytime
- They want to be independent, in control
- Sundowning when tired

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Person-Centered Care: Practice Example #3

How would you help your patient and their caregiver in this situation?

"He is refusing to come to the neurology appointment!"

- Anosognosia, don't think they need help
  - Loss of autonomy
  - Will they put me in a home? Tell me not to drive?
- Fearful of something wrong
  - Don't understand medical conversation
  - Know they will be tested and questioned
- They may not remember what was said, but they remember the experience!

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Person-Centered Care: Practice Example #4

How would you help your patient and their caregiver in this situation?

"He is refusing to shower or wash-up!"

- Showers are very stimulating
  - A lot of wetness, smells, touch, temperature change at once
  - Soap or water may get in eye or hair, uncomfortable
- The order of hygiene can be confusing
  - Humiliating and embarrassing to need help with this
- Clothes are comfortable and warm, why change
  - Will sometimes wear layers of clothes or inappropriate clothing
- Shaving, toilet wiping is intimate and painful if done incorrectly

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Person-Centered Care: Practice Example #5

How would you help your patient and their caregiver in this situation?

"She keeps pocketing all of her food and meds in her mouth!"

- Do the pills taste bad? Cause upset stomach?
  - Are you hungry and prefer to eat food? Are you thirsty?
- Is the food too warm? Too smelly? Not flavorful?
  - Taste and smell change with dementia
- Do we need to cut up the food or use utensils together?

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Any Questions?

Brain Health, Cognition, and Whole Person Care in Parkinson's Disease.

Every interaction is an opportunity to improve or distress someone's mind. You are on their mind, if only for a moment. How can we make best use of that opportunity?

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