Scams: Influencing the Aging Brain

Neuropsychology: study of the brain and how it relates to cognition, emotion, and behavior

Neuropsychological Assessment: a comprehensive evaluation of how the brain is functioning. Examines cognitive skills (IQ, attention, speed of information processing, executive functions, learning and memory, language skills, visuospatial skills, and mood and emotional states).

Scam: A dishonest scheme. Often a large scale impersonal scheme, sent to a lot of people not known to the scammer. Common scams include:

1) lotteries (Jamaican, Canadian, etc)
2) grandchildren arrested in another country
3) 419 scams (Nigerian scams) supposedly named after 419th section of Nigerian penal code that relates to fraud

Techniques of Persuasion: All About the Advertising

- Have the appearance of authority
- Give a sense of urgency
- Create a visceral feeling
- Disproportionate size of the prize to your cost
- Emotional triggers (greed, fear, sex, pity)
- Behavioral commitments (foot in the door)
- A personal touch

These are common techniques used to induce errors in judgment. They affect everybody, not just seniors, but seniors appear a little more sensitive to them.

Conditions That Can Lead to Scam Participation

Normal Aging: Discussed further below.

Dementia: A syndrome marked by notable impairment in 2 or more areas of cognitive functioning (memory, language skills, executive functions, etc.) that causes a significant decrease in the ability to function independently. Dementia is acquired, not necessarily progressive, and not reversible.

Mild Cognitive Impairment: the loss of a single mental ability that is more severe than is seen in normal aging. Less functional decline, in any. Possible precursor to dementia.

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Some Diseases and Conditions That Result in Dementia

- **Alzheimer's disease**: The most common. Begins slowly and insidiously and is progressive.
    - 50-70% of dementia
    - begins in 60s and slowly progressive
    - marked by problems with memory initially, with later impairment in language skills and reasoning.
    - lack of awareness of deficits and irritability/social withdrawal

- **Frontotemporal dementia**: Slow onset and progressive.
    - Dramatic behavioral and personality changes are first symptom, memory impairment occurs later.
    - Poor judgment and disinhibition is notable.

- **Strokes (Vascular dementia)**: Caused by strokes or vascular issues, so has an abrupt onset.
    - Usually not a progressive decline.
    - Types of deficits depend on location and extent of damage.

- **Parkinson's dementia**: Sometimes develops from Parkinson's disease.
    - Marked by mental slowness, impaired executive functions and memory impairment.

- **Lewy body dementia**: Slow and insidious onset.
    - Features of Parkinson's and Alzheimer's
    - Marked by mild movement difficulties, memory impairment and fluctuating confusion, and psychiatric problems such as hallucinations.

<u>Aging and the Brain (normal changes we all experience)</u>

Physical Changes Associated with Aging

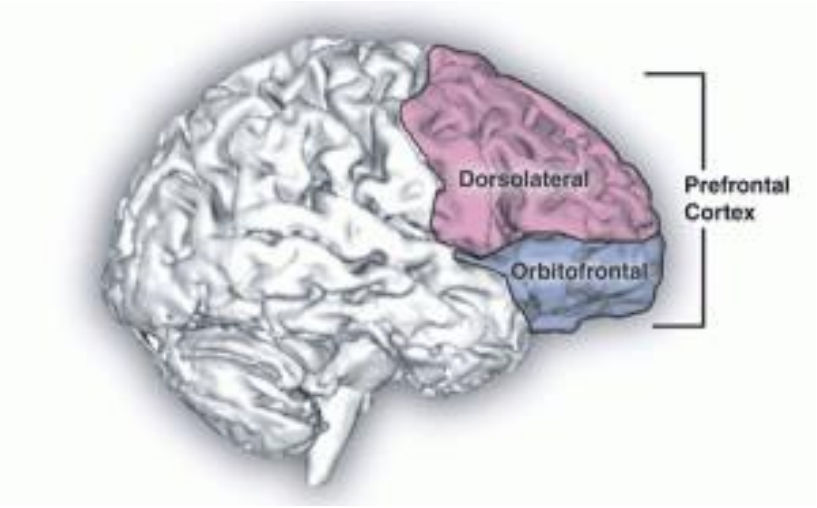
- brain atrophy begins in the 40s or earlier
- cerebral blood flow and metabolism decline
- neurofibrillary tangles begin to develop and neurotransmitter receptors decline

Thinking Changes Associated with Aging

- Fluid intelligence declines
    - Speed of information processing slows
    - Complex attention declines
    - It becomes harder to solve unfamiliar problems

By themselves, these changes make rapid decision making harder, but don't fully explain why some older people fall prey to scams so easily.

This requires a little more thorough analysis of the brain.



The frontal lobe: involved in the planning, execution, and control of movements

The prefrontal cortex (PFC): portion of the frontal lobe involved in that planning and decision making

Interesting Fact: damage to the prefrontal cortex results in impaired reasoning, impulsivity, poor judgment/real world reasoning, and most significantly, poor awareness that these are problems.

Frontal Lobe Hypothesis of Aging (West, RL 1996): Cognitive deficits in older adults are primarily due to the anatomical and functional deterioration of the frontal lobes.

Supported by several lines of evidence including the following:

- Cognitive deficits in older adults are more pronounced in tasks that are highly dependent on executive functioning, assumed to be mediated by the prefrontal cortex.
- Age related reductions in brain volume (atrophy) are more pronounced in prefrontal cortex than in other brain regions.

Cognitive deficits in healthy older adults are greater for tasks that are highly dependent on executive control processes, such as inhibiting irrelevant information, coordinating multiple simultaneous operations (muli-tasking), and manipulating information within memory.
These are some processes we would rely on to detect a scam. It turns out that there is research showing that people with damage in this portion of the brain exhibited disinhibition and addictive behaviors, and have poor insight into this, so also likely to fall risk to scams.

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Key point: Normal older adults who do not show significant cognitive impairment or dementia can exhibit some limitations in decision making when they are rushed and forced to rely on peripheral reasoning (emotions and urgency) rather than central processing (logic).

So healthy seniors are more vulnerable to scams and problems with real world reasoning, but some seem even more vulnerable. Why?

Unfortunately, real world reasoning is hard to assess. One technique that has been effective is the Iowa Gambling Test, which simulates gambling and so has some similarities to the emotional and superficial motivations activated in scams. Individuals who exhibit impairment on this test tend to have damage in the prefrontal region of the brain.

Back to the Older Adults

- Seniors show greater atrophy in the frontal lobe of the brain.
- On the Iowa Gambling Test seniors show weaker performance, similar to that seen in individuals with frontal lobe impairment.
- About 15-25 % of older adults seem to demonstrate uneven atrophy, with greater atrophy in the prefrontal region in comparison to other seniors.
- About the same percentage of older adults tends to show even more significant impairment on the Iowa Gambling Test. (See articles by Denburg, N.)

Conclusion: unimpaired older adults generally have weaker speed of information processing, memory, and novel reasoning, which can make rapid, real world decision making more prone to error. A subset of seniors also seem to show greater impulsivity and impaired judgment that makes them even more susceptible to the techniques used by scammers.

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What Can We Do?

- **Be aware of financial warning signs**. Are they exhibiting:
  - Changes in financial behavior
  - Memory lapses
  - Disorganization
  - Decreased checkbook management skills
  - Arithmetic mistakes
  - Financial concepts confusion
  - Generally impaired judgment

- **Use Socratic questioning techniques.** Come from a point of ignorance when trying to understand their decision making process. Explore:
  - Can they explain the reasoning behind their decision?
  - Is there decision consistent with their goals and known commitments/values?
  - Do they understand the consequences and irreversibility of the decision?

When Considering a Professional Evaluation

- Use a neutral expert who understands capacity assessment
- Disciplines to consider include geriatricians, neurologists, psychiatrists, geropsychologists, and neuropsychologists
- **Clearly identify the specific question you want addressed!**

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General Goals for Helping Seniors Fallen Victim to Scams

- Try to educate the senior and family about the problems they are having, but realize education is often not the problem, it is lack of insight into their deficits. These individuals know what a scam is. The problem is that their weakened insight and judgment limitations makes them believe that they won't fall for a scam.
- Education must initially focus on building insight into their impaired reasoning and impulsivity. Once these problems can be accepted and understood, the individual will be more open to learning about how to recognize and avoid scams.
- Once insight has been established, compensatory strategies, such as phone hang-up devices and financial monitoring or assistance may be helpful. If attempted too soon, the individual may not use them and may attempt to hide their participation in scams.

- Unfortunately, in many cases supervision and limitation of access to financial assets may be necessary for protection as the individuals may be unable to develop insight into their problem.
- Family involvement and education is critical. Supervision may become necessary.

Resources for legal advice or protection: National Academy of Elder Law Attorneys (NAELA) http://www.naela.com **Resources for potential fraud or exploitation:** Adult Protective Services (APS) 1-800-252-5400 http://www.apsnetwork.org/ **Resources for reporting financial abuse:** Federal Trade Commission: ftc.gov Internet Crimes: www.ic3.giv Mass marketing fraud: stopfraud.gov	**Resources for social services and investor protection:** National Center on Elder Abuse http://www.ncea.aoa.gov United Way http://www.211.org National Association of Professional Geriatric Care Managers http://www.caremanager.org Case Management Society of America http://cmsa.org/ North American Securities Administrators Association http://www.nasaa.org Investor Protection Trust http://www.investorprotection.org

ERIK LANDE, PH.D.
805-988-6197
WWW.INSIGHTNEUROPSYCHOLOGY.COM

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