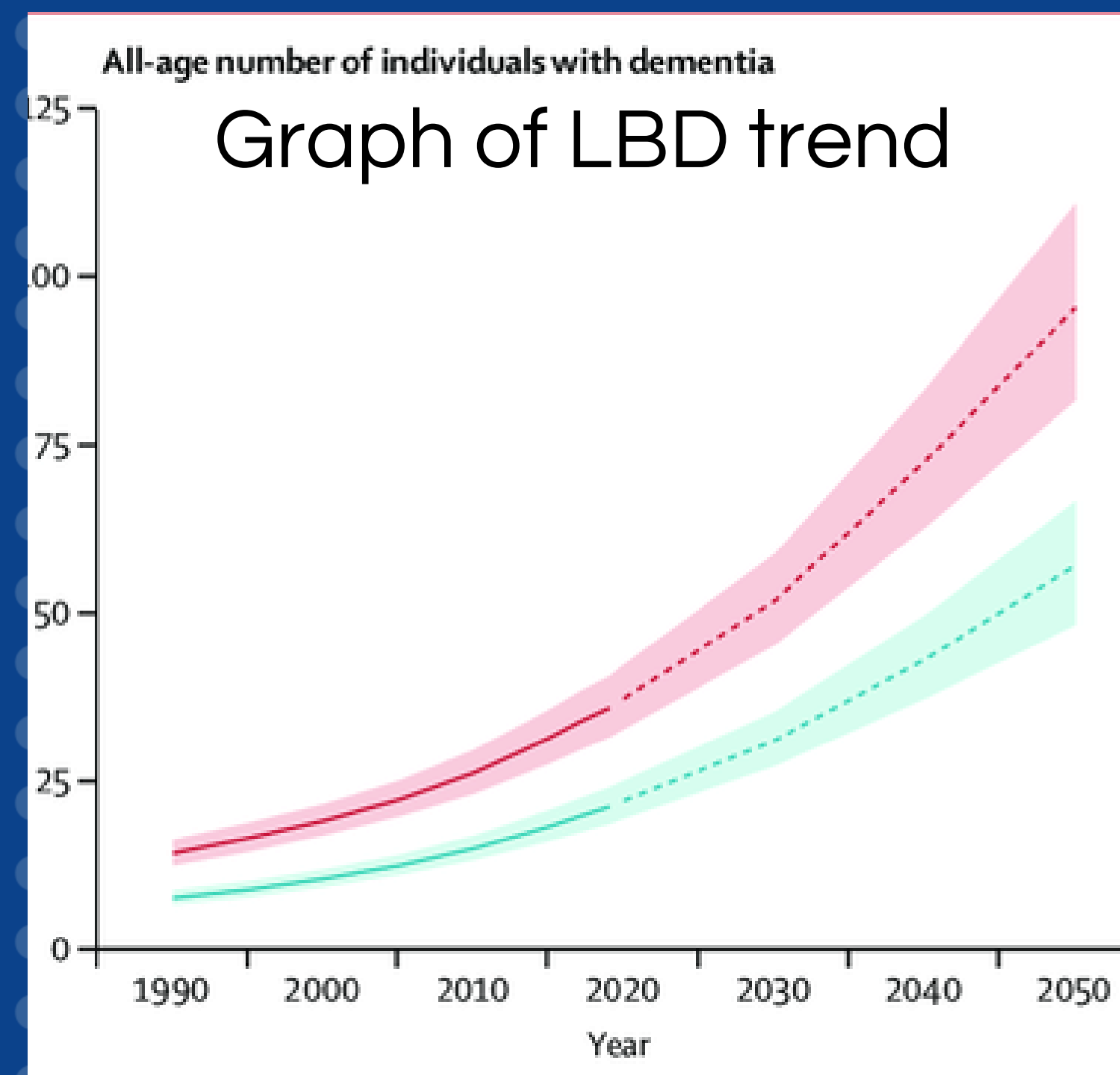


Purpose

This project intends to analyze the reality of people with Lewy Body Dementia and develop three inventions that might help improve their lives through diagnoses and routine hacks.



Background

- In the United States alone, over 1.4 million people have been diagnosed with LBD.
- Learning more about this condition can help a rather large population.
- This form of dementia mostly affects seniors.

Causes

Changes in some genes can lead to the formation of Lewy Body in the brain, such as SNCA and SNCB genes, excess of Alpha-synuclein proteins and GBA or APOE mutations.

Symptoms

Memory loss, confusion, difficulty concentrating, hallucinations, sleep disruptions, loss of balance, tremors and uncontrollably shaking, high sensitivity to medicines, depression and aggression.

Diagnose

- Medical history and examination
- Medical tests
- Brain imaging
- Neuropsychological tests
- Wearable biomarkers

Current Therapies

- Cholinesterase inhibitors (Aricept®, Exelon®, Razadyne®) and levodopa
- Speech and cognitive therapy can also be helpful to patients to help with their everyday functions.

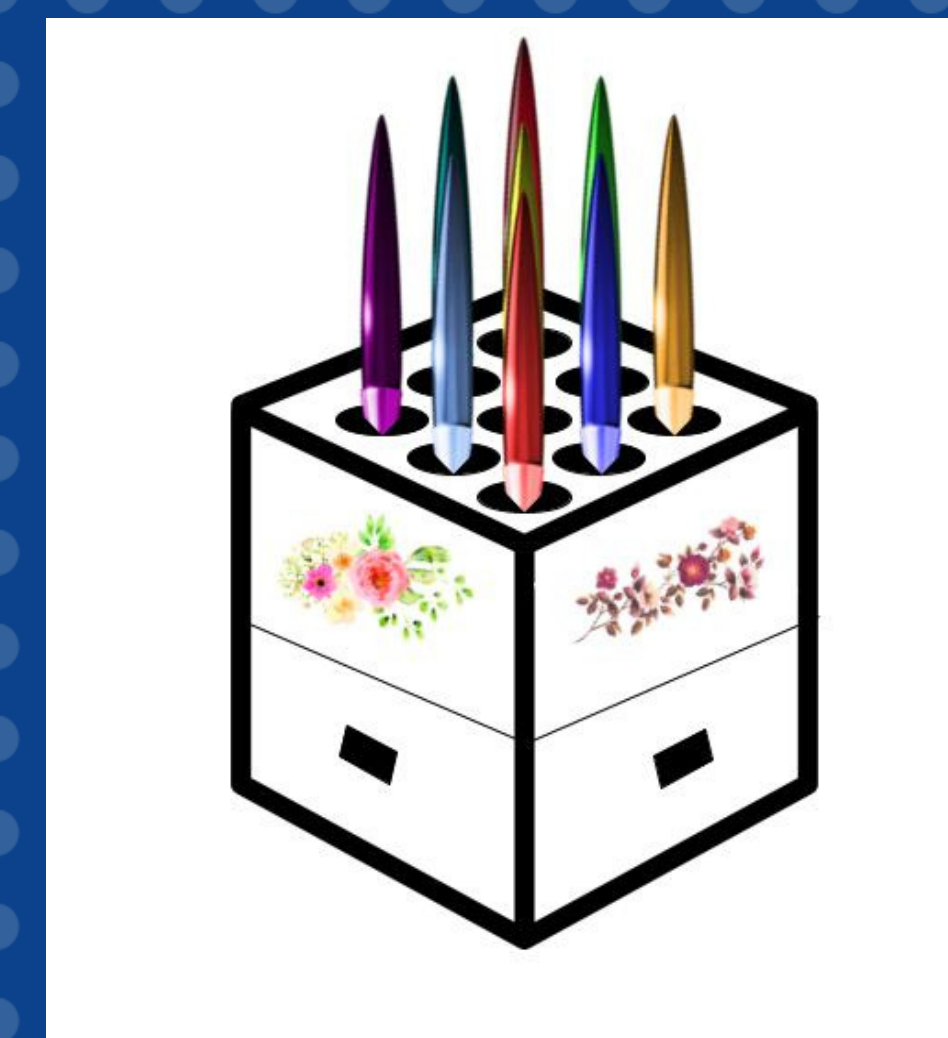
Lewy Body Dementia

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Scientific Solution

As of now, there are not 100% definitive ways to diagnose LBD in a patient until a brain autopsy after their death. Even more concerning, LBD patients depend on early diagnosis in order to effectively mitigate their symptoms and lead their normal lives. Our solution for this issue is a novel biosensor that detects the unique Alpha-synuclein presynaptic protein that aggregates in high levels in the cytoplasm of LBD patients' cells.



Invention Solution

Our invention, "ArtBox" is a solution to improve motor skills and overall emotional state at the same time. It allows people with LBD to express their creativity while maintaining happiness as well. "ArtBox" can also be used by family members and loved ones to build connections with one another, and this is fun for people of all ages.



App Solution

LBD has different stages and a wide spectrum of symptoms; as a result, it is extremely difficult for common people to notice. Our app will provide mind games that are easily solvable by a normal person but extremely difficult for those with LBD. The app does not diagnose anyone of dementia - it is simply a tool that can be used to recognize symptoms of LBD and recommend visiting a doctor.

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