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# Applying Functional and Integrative Medicine to improve your health!

Fred Grover Jr. M.D.

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# The Global Functional Medicine Strategy

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**Body**

**Mind**

**Spirit**

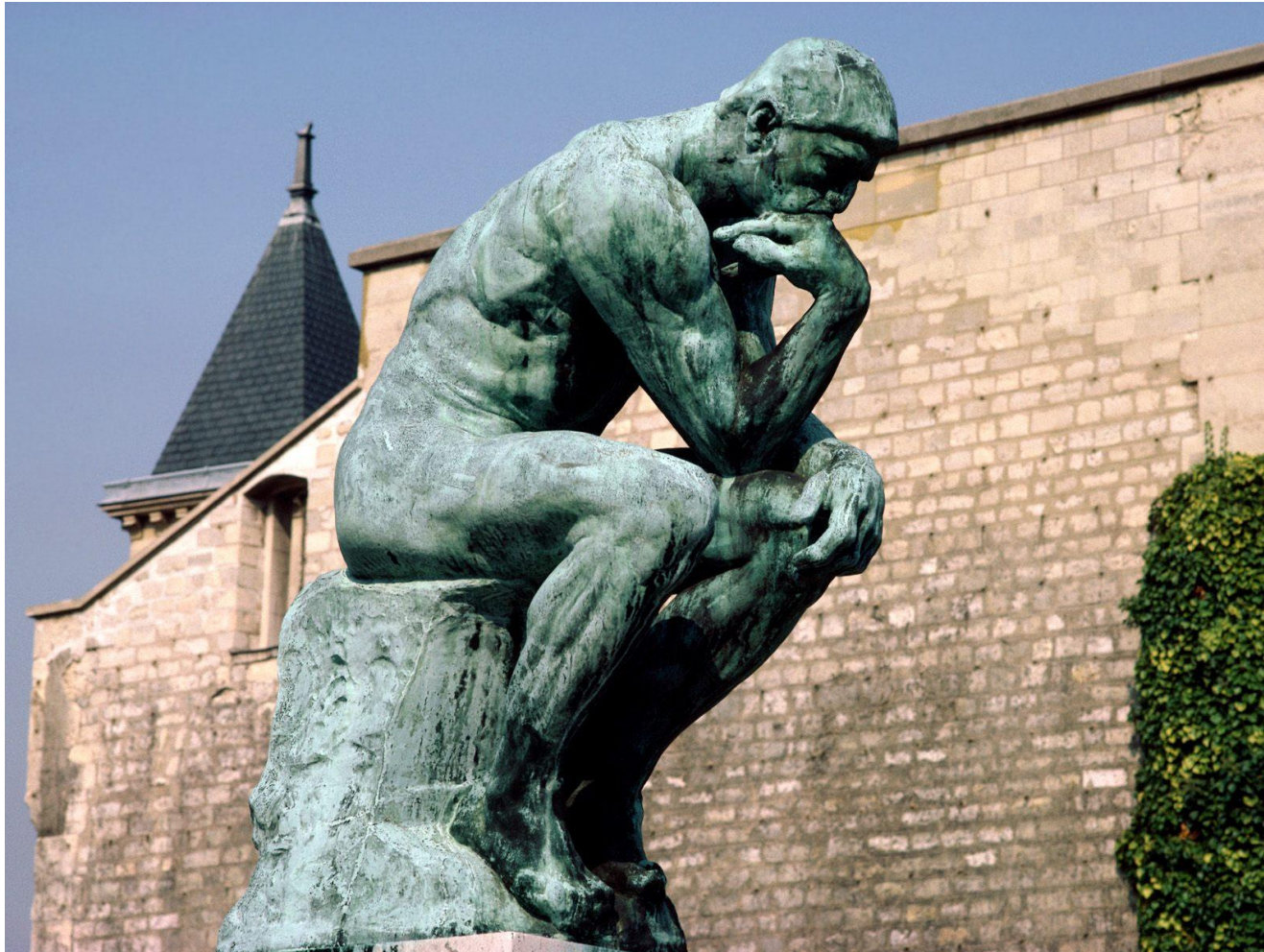


# Functional Medicine Approach

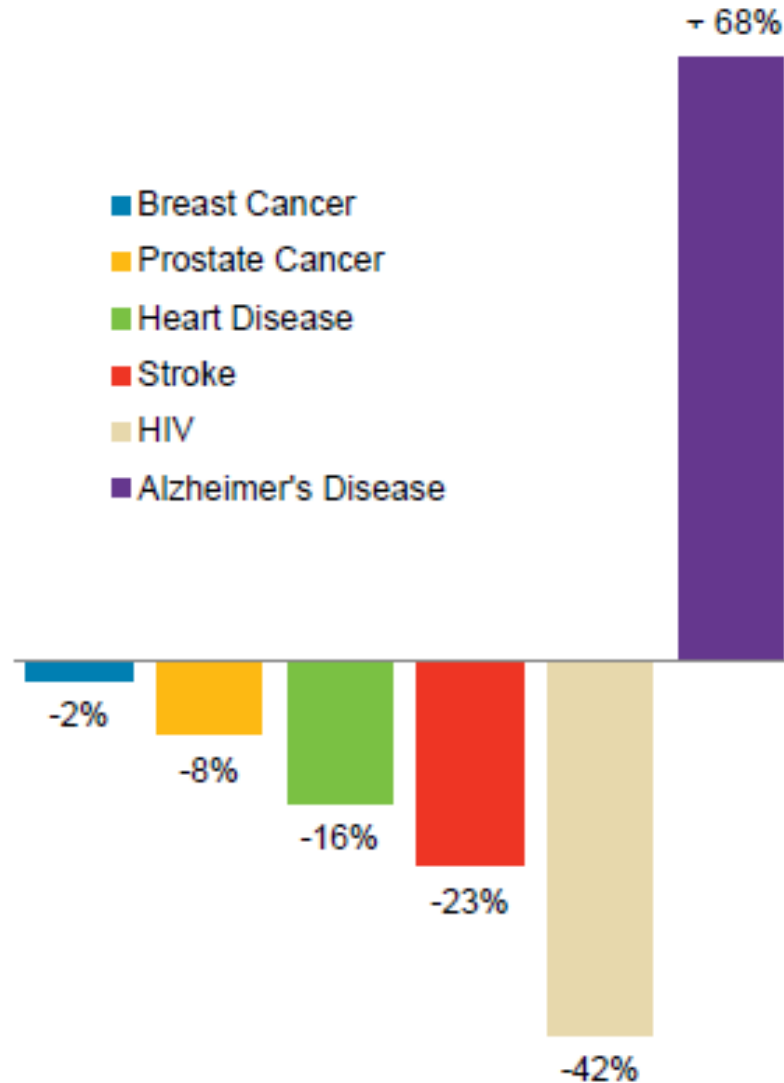


- **Seeks to identify and treat root cause, and not simply the symptoms.**
- **Personalized, not cookbook medicine.**
- **Preventative, not reactive “sick care”.**
- **Includes dietary and lifestyle coaching.**
- **Thorough, in-depth analysis that may include advanced testing such as genetic markers, nutritional screening, and functional imaging.**

# Let's focus on your CPU, the Brain!



# What's concerning here?



Disease Prevalence chart from the Alzheimer's association, [alz.org](http://alz.org)

# Alzheimer's Stats



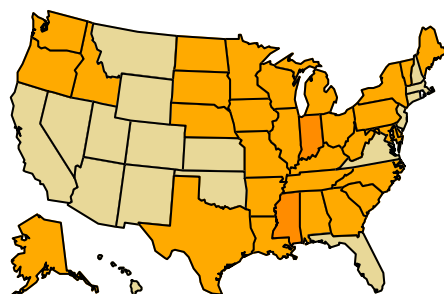
- 5.2 million currently have Alzheimer's in US, equal to the population of Colorado.
- 200,000 of these have early onset <65.
- Estimated to rise to 13.8 million by 2050
- Medicals costs of 203 Billion in 2013, rising to 1.2 trillion in 2050.

# What's the Root Cause?

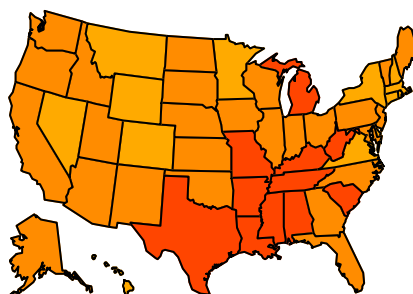


## Obesity (BMI $\geq 30$ kg/m<sup>2</sup>)

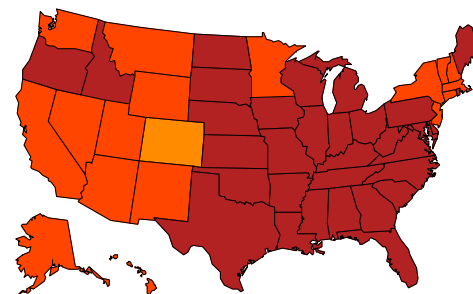
1994



2000



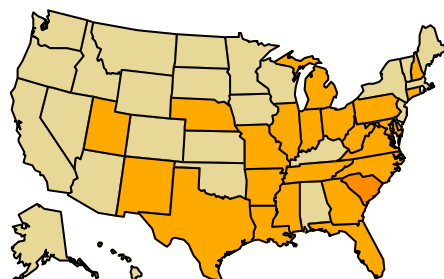
2010



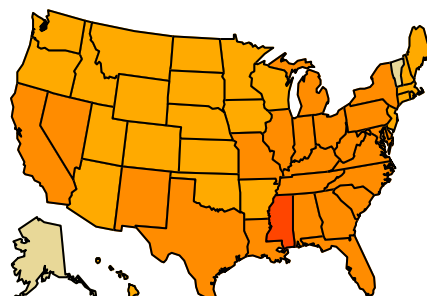
☐ No Data  
 ☐ <14.0%  
 ☐ 14.0%–17.9%  
 ☐ 18.0%–21.9%  
 ☐ 22.0%–25.9%  
 ☐ 26.0%

## Diabetes Prevalence

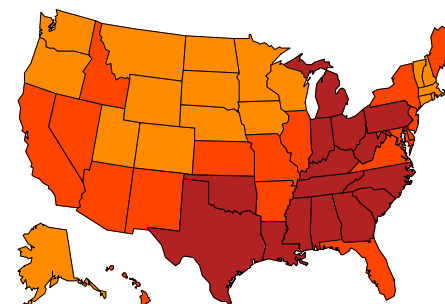
1994



2000



2010



☐ No Data  
 ☐ <4.5%  
 ☐ 4.5%–5.9%  
 ☐ 6.0%–7%  
 ☐ 7.5%–8%  
 ☐  $\geq 9.0\%$

CDC's Division of Diabetes Translation. National Diabetes Surveillance System available at <http://www.cdc.gov/diabetes/statistics>

# What does and elevated glucose cause?



# How does this contribute to Alzheimer's risk?



- Type 1 diabetes (Insulin dependent) increases your risk three fold.
- Type 2 diabetes increases your risk two-fold.
- Pre-diabetes increases your risk by 60%.

# Who has a metabolic risk for Alzheimer's?



- If you already have Diabetes or pre-diabetes work aggressively on weight loss and improving glucose control to reduce risk.
- If your BMI (Body Mass Index)  $>26$  consider additional testing beyond a fasting glucose to assess risk and rule out pre-diabetes/diabetes.
- Check your serum insulin level, Hemoglobin A1c and consider a 2 hour glucose tolerance test too if borderline values.

# What other tests are recommended?



- Consider genetic testing for the Apo-E4 allele which can increase your risk of Alzheimer's.
- Check expanded Cholesterol profile such as VAP, LPP, or Boston to assess vascular risk more thoroughly.
- Rule out gluten sensitivity and Celiac. If positive blood test, eliminate it from diet.
- Check and address heavy metal toxicity if found in blood test.
- If you have current concerns about cognitive impairment consider the ADAS-Cog via though a neuropsychologist.

# Brain Imaging for Symptomatic Evaluation

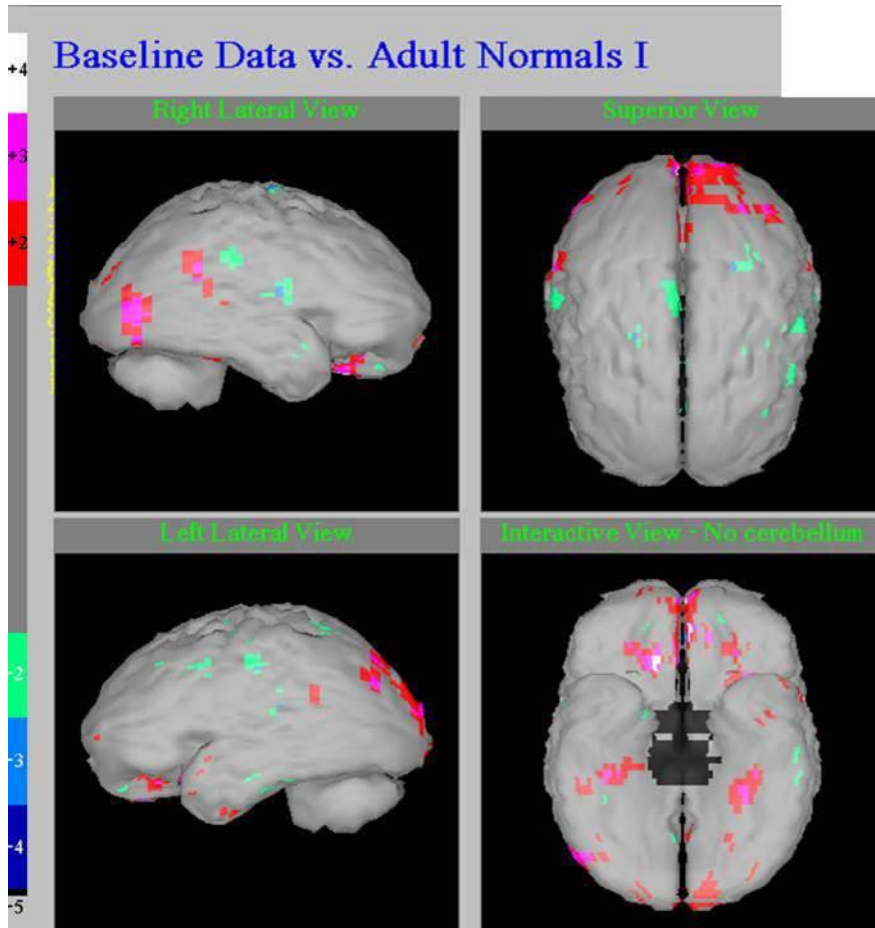


- Consider **SPECT** imaging to assess blood flow patterns which helps differentiate between various types of cognitive impairment. (fronto-temporal, etc)
- Check an **MRI** to assess structure, rule out atrophy, past strokes and other concerns

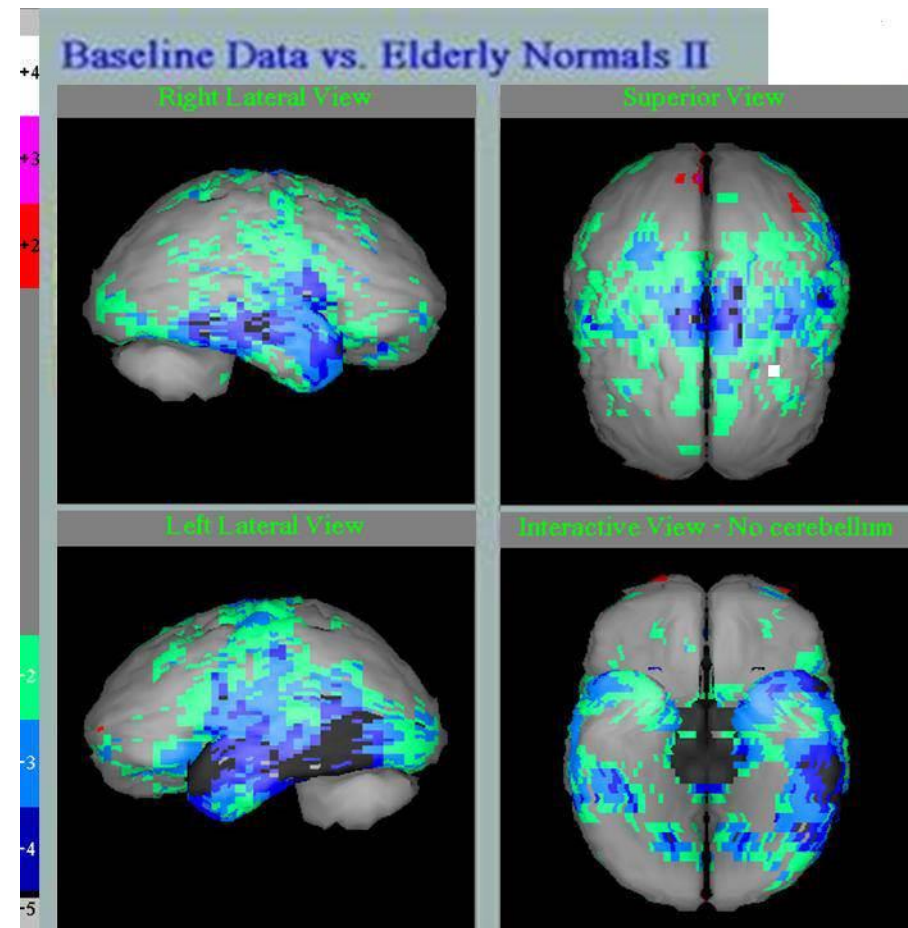
# SPECT Imaging Evaluation



## Normal Brain

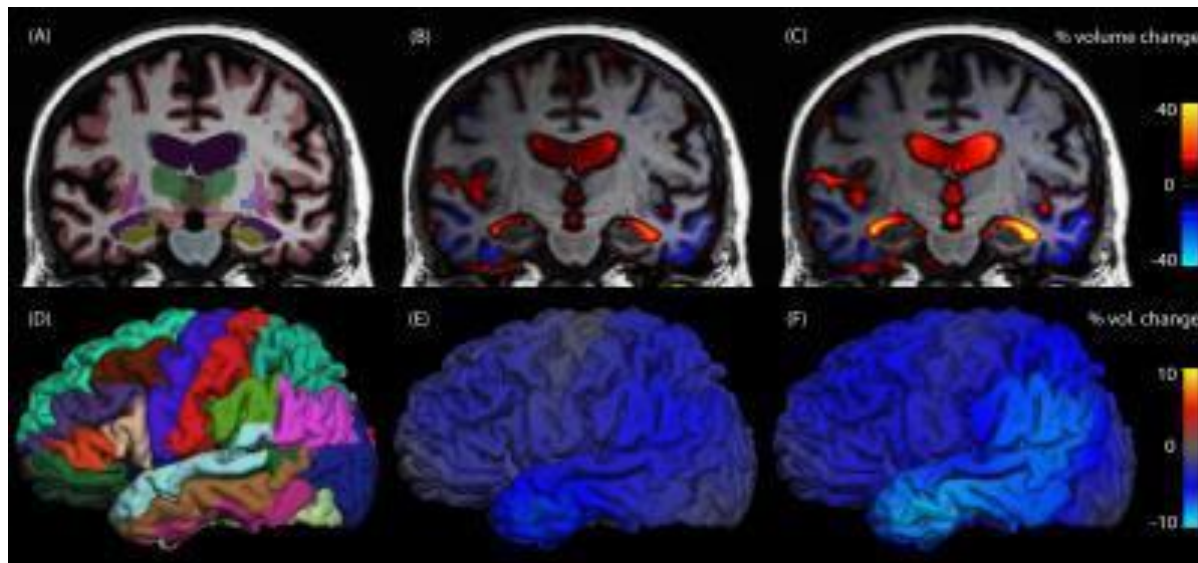


## Alzheimer's Brain



Images provided by Cerescan Imaging, Denver,Co

# MRI Findings in Alzheimer's



*Serial MRI brain scans, taken six months apart, show progression from mild cognitive impairment to Alzheimer's disease, with significant atrophy (blue) and ventricle enlargement (orange/red). (Credit: University of California, San Diego, UCSD)*

# Strategies to save your brain!



- **Exercise** at least 30 min. 5 x's a week.
- Maintain a **low carbohydrate organic** diet with healthy fats. (Paleo with emphasis on fish and lean meats) Keep your BMI <26
- Consider **brain health marker testing** with your physician. (See our website for test list)
- **Minimize stress** with mindful activities. Meditate, consider neurofeedback.
- Of course, **Don't smoke!**
- **Optimize sleep** and check a sleep study if any concerns of snoring or daytime sleepiness.



# More Strategies!



- **Balance hormones if needed.**
- **Basic Brain supplements- Multivitamin with methylfolate, Vitamin D, Co-Q10, Curcumin, Omega-3, Alpha-lipoic acid baby aspirin, phosphatidyl serine.**
- **Protect your brain from TBI, keep the helmet on.**
- **Keep your blood pressure under good control.**

# Emerging Strategies

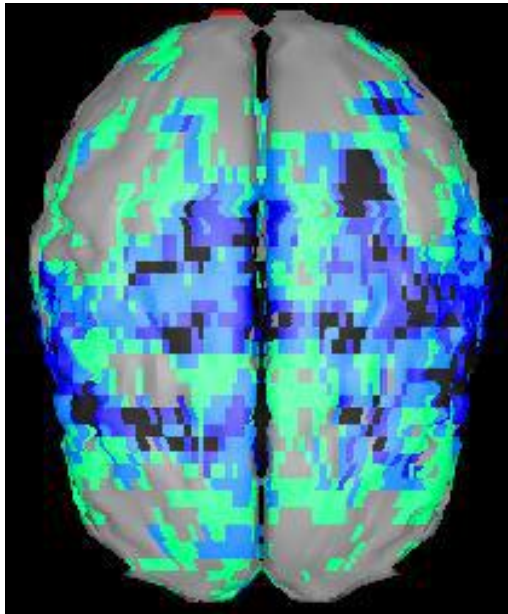


- **Near-Infrared LED Transcranial therapy**
  - On-going study at Cerescan with wounded warriors who suffered TBI.
  - Displaying improved microvascular blood flow, and cognition after 3 months of therapy.
  - Additional mechanisms include reduced inflammation, improved metabolism and neuronal regeneration.
  - Will likely show benefit for Alzheimer's as well.

# Transcranial NIR LED Therapy



Pre-treatment Spect

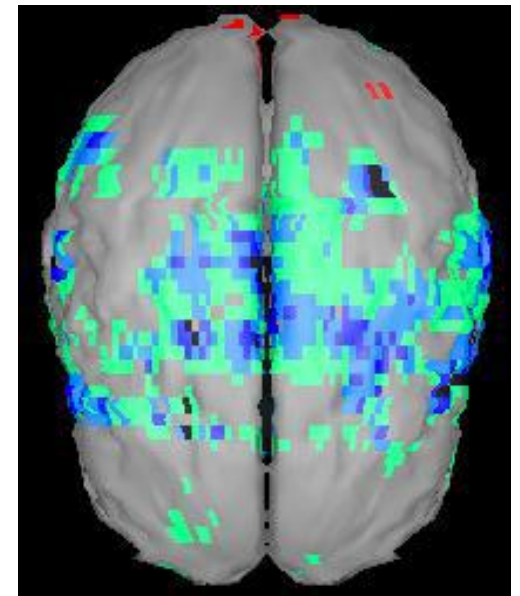


TBI Injured Veterans

NIR LED therapy x 18 tx



Post-treatment Spect



Imaging by Cerescan, NIR LED by Lumiwave



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## Summary

- Be proactive with your health, especially for your brain!
- If your physician does not embrace functional medicine, find a provider that does, and add them to your team.
- For a summary of recommendations and this talk visit my website at [RevolutionaryMD.com](http://RevolutionaryMD.com)

# Questions?

