

# Complementary and Alternative Medicine For Parkinson's Disease



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## Presentation Outline

- Assessing Therapies: Benefit/Risk (Safety)
- Acupuncture and Tai Chi
- Stress and the Brain
- Supplements
- Conclusions

## Assessing Complementary Therapies



- Is it Safe?
- Is it Beneficial?
- Is it Cost Effective?
- Practitioner Training and License

**OK**

High Benefit – Safe – Low Cost

Unknown Benefit - Safe – Low cost

**Probably OK**

Unknown Benefit – Safe – High cost

**Question**

Unknown benefit – Unknown Safety – High cost

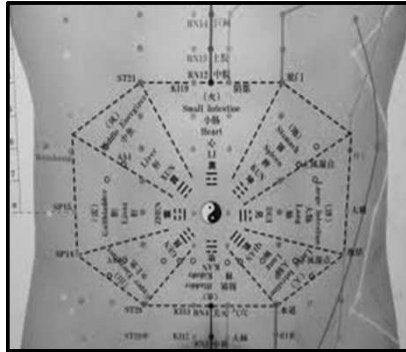
## Acupuncture/Acupressure



## Background

- Thin Needles
- One of the Oldest Medicinal Practices
- 3.4 million Americans report using

## Types of Acupuncture



- Traditional Chinese Medicine
- Medical Acupuncture
- Electro-Acupuncture
- Auricular
- Scalp
- Japanese Acupuncture
- Acupressure

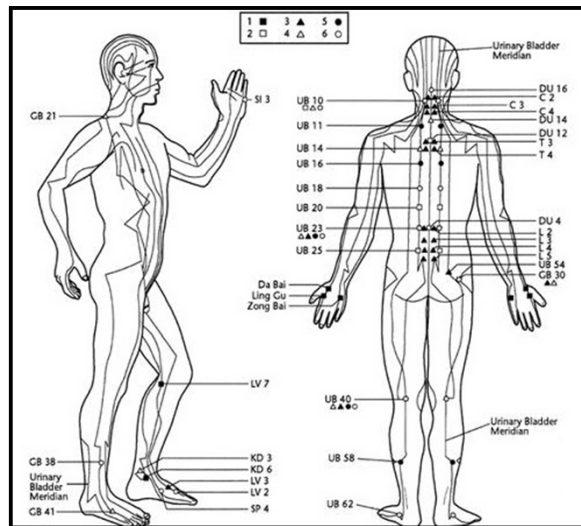
## Safety

The FDA regulates acupuncture needles for use by licensed practitioners

Although millions in the U.S. have received acupuncture the FDA has received very few reports of adverse effects



## Meridians



## How does it work? Meridians and Health

- Meridians are pathways where Qi flows
- Qi is what nourishes the body
- Problems occur when there is Qi blockage
- Acupuncture uses needles to unblock Qi
- Acupuncture points are not anatomical structures
- We still do not know how acupuncture works



## Acupuncture in PD

- Review of randomized clinical trial in PD
- Three RCT did not show an improvement (UPDRS)
- Three RCT found scalp acupuncture plus conventional therapy better than conventional therapy alone (UPDRS)
- Authors also conclude that further studies for acupuncture in PD are warranted

Lee MS, et al. Movmt Dis. 2008

## Acupuncture in PD

- Pilot study evaluating acupuncture effects on brain function in PD
- Twenty PD subjects randomized to acupuncture (GB34) or sham acupuncture (placebo).
- Outcomes fMRI and motor function (finger tapping)
- Acupuncture group showed significant improvement in motor function
- Authors conclude that acupuncture may facilitate improvement in motor function by acting on specific areas in the brain

Chae, et al. Movmt Dis. 2009

## Tai Chi



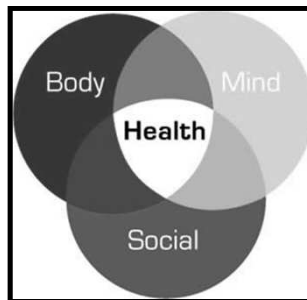


Tai Chi is a Chinese system of slow, meditative movements designed for relaxation, balance, and health

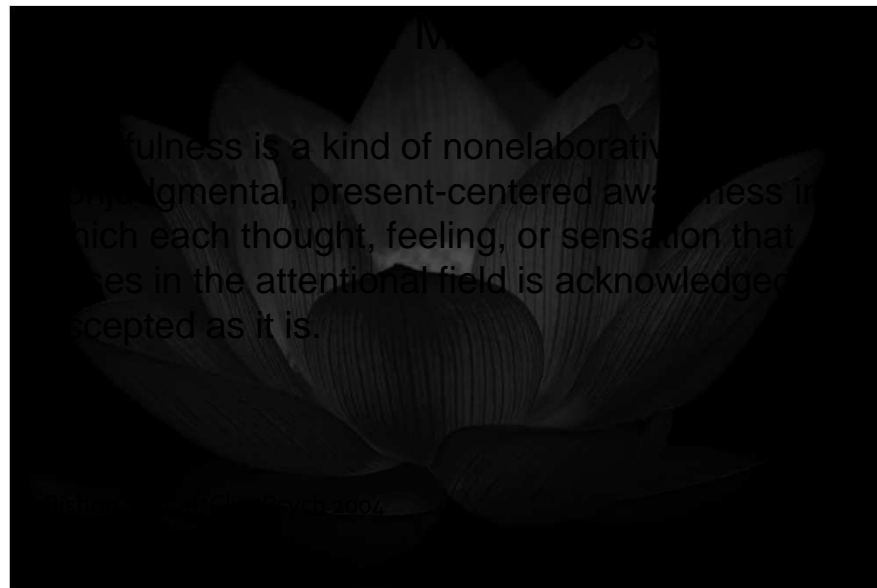
In the US it is a type of Mind-Body Medicine

## Mindfulness and Mind-Body Medicine

Therapies that integrate the brain, mind, body, and behavior with the intent to use the mind to affect physical functioning and promote health



National Center of Complementary and Alternative Medicine



OR

You can't stop the waves but you can learn to surf



## Mindfulness Practices



- Yoga
- Meditation
- Body Scan
- Tai Chi
- Qi Gong
- Mindfulness Based Stress Reduction (MBSR)

## Mind-Body Use in United States

30% in US report doing yoga, meditation, deep breathing

## Tai Chi in PD

- Goal was to determine if Tai Chi improved postural stability (balance) compared to stretching or resistance training
- 195 PD subjects randomized. All interventions were for 60 mins twice a week for 24 weeks.
- Subjects in Tai Chi group had reduced balance impairment when compared to stretching and resistance training groups
- Improvements maintained 3 months after intervention

Li et al. NEJM 2012



The Stress Response is Designed  
to be Protective

Fight or Flight



### Adrenaline and Cortisol are Released

- Increases Heart Rate
- Increases Respiration Rate
- Increases Blood Pressure
- Increases Glucose

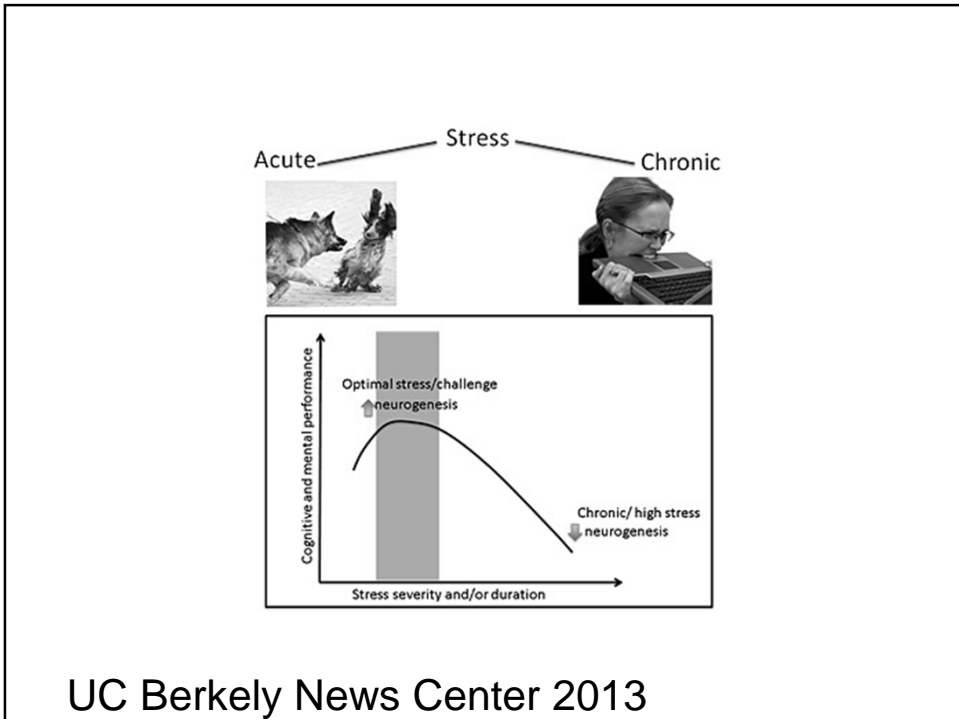
### The Positive Effects

- Increases Stamina
- Increases Strength
- Increases Reaction Time
- Enhances Focus and Mental Acuity

## Fight or Flight







## When Fight or Flight Goes Awry

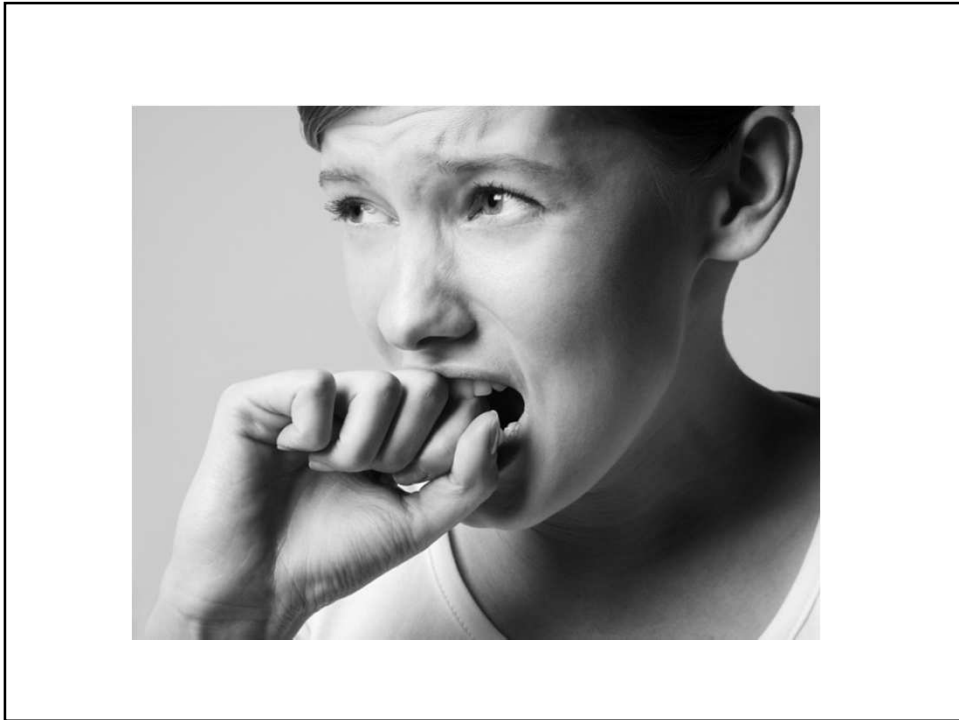
## Chronic Stress

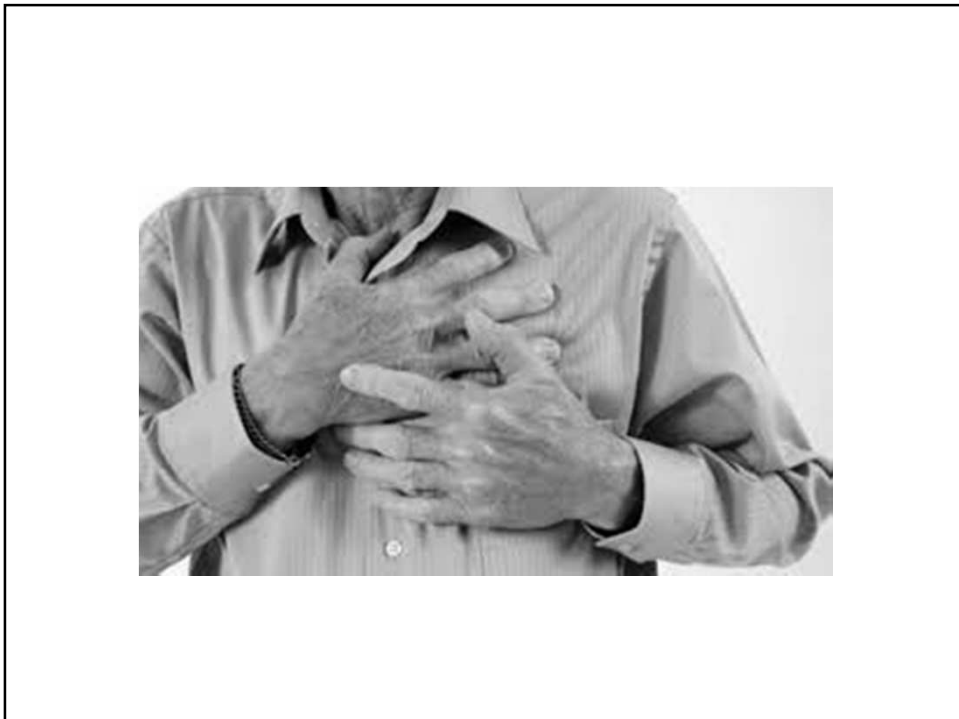


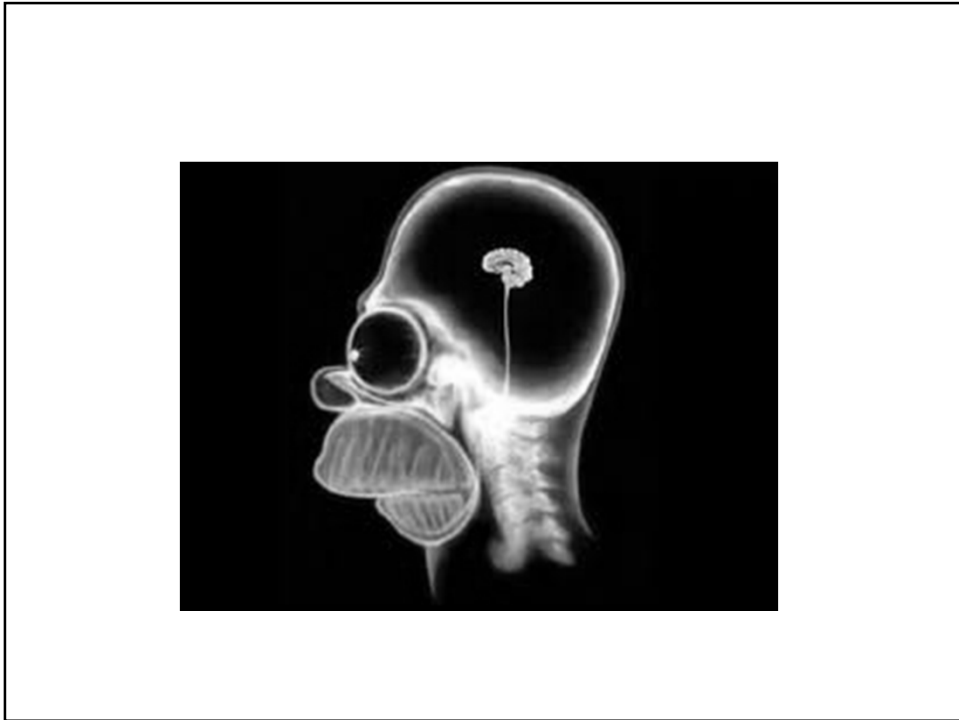
Adrenaline and Cortisol are Released

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Long-term

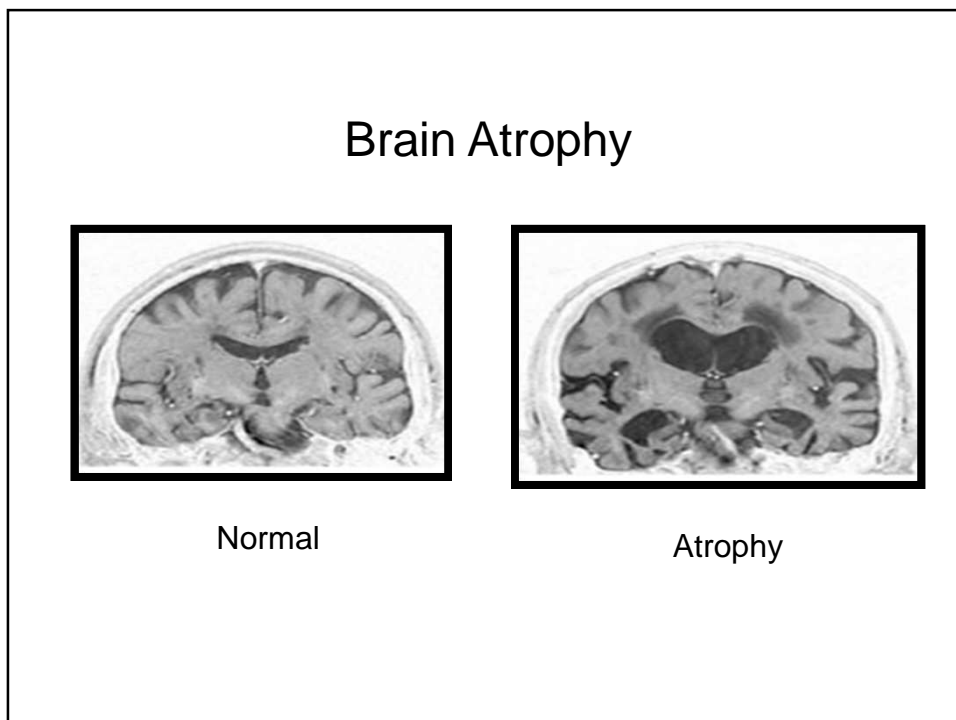
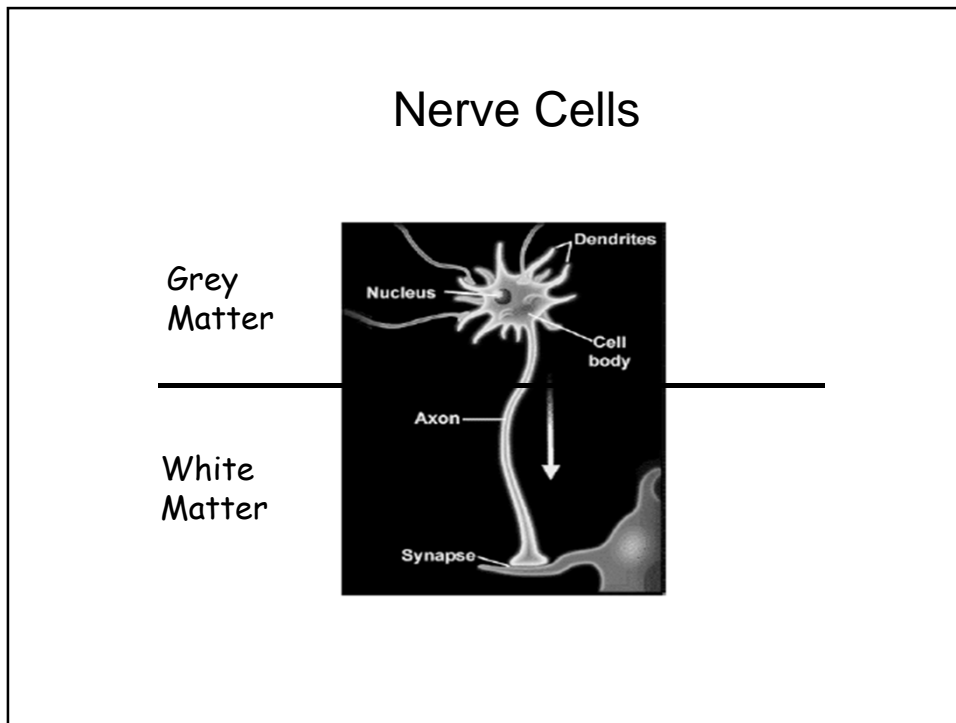




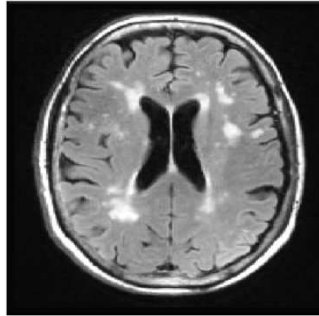


## Stress and The Brain



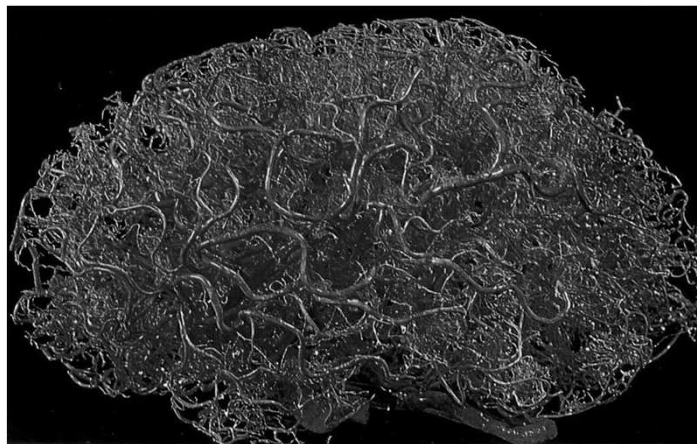


## White Matter Damage

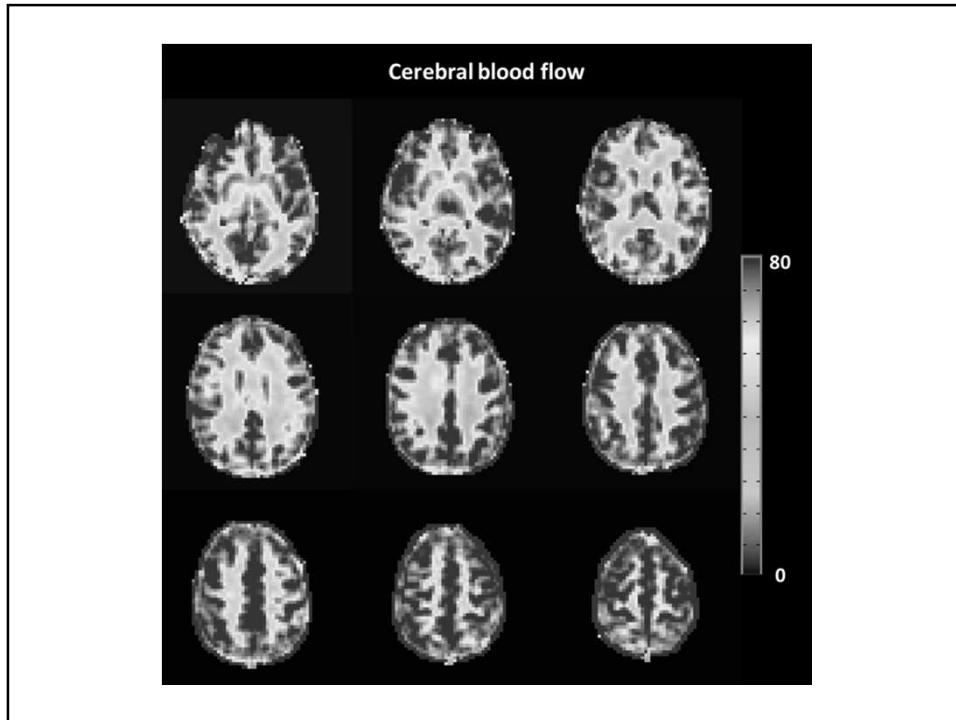


## The Brain is Vascular Rich

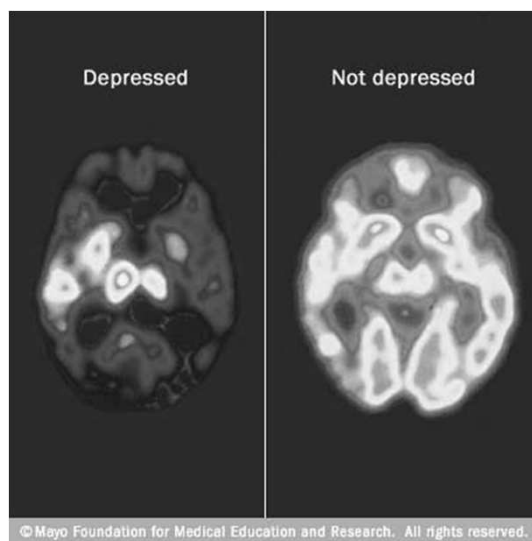
- 400 miles of blood vessels
- Uses 20% of total oxygen
- Uses 10% of total glucose







## Stress Can Affect Metabolism in Brain



We are not doomed

There are many ways to reduce stress

## To Improve Brain Resilience



## Mindfulness Based Stress Reduction (MBSR)

An 8-week program created by Jon Kabat-Zinn that combines meditation and yoga and is a secular practice.

- Guided instruction in mindfulness meditation practices
- Gentle stretching and mindful yoga
- Group dialogue and discussions aimed at enhancing awareness in everyday life
- Individually tailored instruction
- Daily home assignments

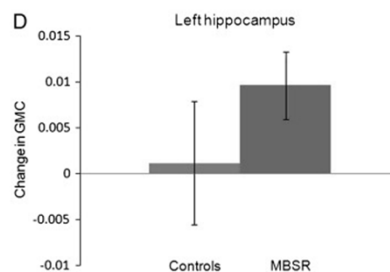


## Resilience

- Resilience is the capacity to adapt when faced with trauma and stressful events
- Mindfulness training has been shown to increase resilience



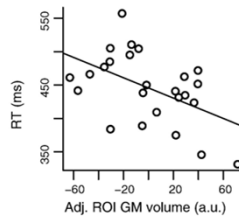
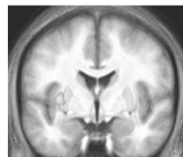
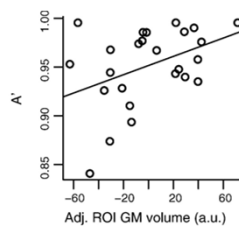
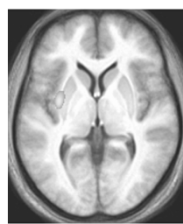
## MBSR Practice Reduces Stress and Changes Brain Structure



Holzel BK et al. Psychiatry Res 2011

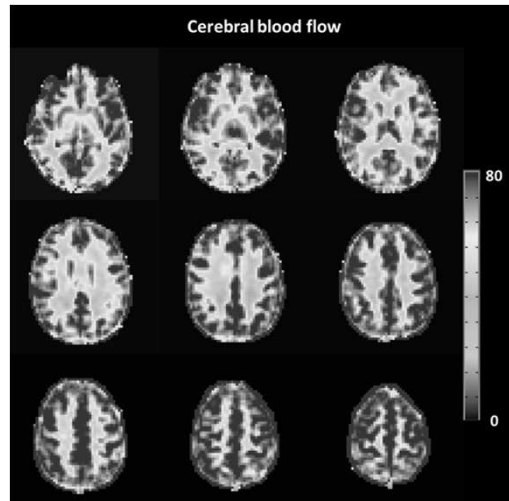
## MBSR training Influences Brain Connectivity

## Meditation May Be Neuroprotective



Pagnoni G and Celic M. Neurobiology of Aging 2

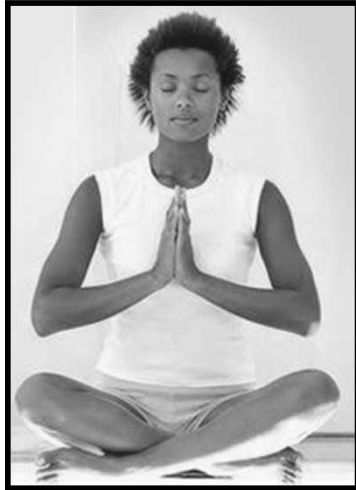
## Mindfulness Affects Cerebral Blood Flow



## Important Points

- Not all Stress is Bad
- Chronic Stress has adverse brain effects
- The Brain is Resilient and Mindfulness Training is Neuroprotective

Mindfulness Therapies are Empowering,  
You don't need a prescription



## Supplements

- Omega-3 Fatty Acids
- Vitamin D
- Mucuna Pruriens

## Omega-3 Fatty Acids



## What is an essential fatty acid ?

- Cannot be made in body
- Must be obtained through diet
- Omega-6 and Omega-3 Fatty Acids



## Omega-3 Fatty Acid

Foods high in linolenic acid (omega-3)

- Soybean oil, canola oil, walnut oil, flaxseed oil

Foods high in DHA and EPA (omega-3)

- Cold water fish (mackerel, herring, salmon, tuna, trout)
- Linolenic acid does not contain DHA or EPA  
10 g. of linolenic acid (flaxseed oil) = 1 g. EPA/DHA

## Omega-3 Fatty Acids in PD

Very limited studies of omega-3 fatty acids in PD

Limited data suggest that brain fatty acids are altered with levadopa tx

## Omega-3 Fatty Acids in PD

One prospective cohort (n=5,289) study found that diet-derived omega-3 fatty acids significantly decrease risk of PD by 35%

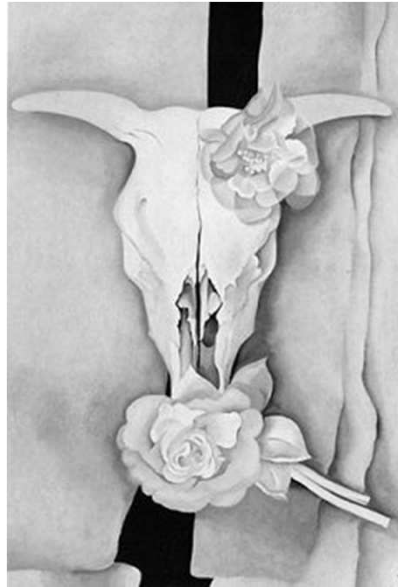
de Lau et al. Neurology 2005

## Omega-3 Fatty Acids in PD

One animal study found that DHA (100 mg/kg) along with levodopa significantly decreased levodopa-induced dyskinesias compared to animal receiving levodopa alone

Samadi et al. Ann Neurol 2006.

## Vitamin D



## Vitamin D in PD

PD patients may have lower vitamin D levels  
when compared to controls

## Dietary sources

	IU/serving
Cod Liver oil (1 tablespoon)	1,360
Salmon (3.5 ounces cooked)	360
Tuna fish (3 ounces canned in oil)	200
Nonfat Milk (1 cup, vit. D fortified)	98
Cereal (1 cup, vit. D fortified)	40
Egg (one)	20
Swiss cheese (1 ounce)	12

## Mucuna Pruriens



## Mucuna Pruriens in PD

- Ayurvedic herb from India that contains L-dopa
- 12 week open label (n=60)
- 26 on L-dopa therapy, significant improvement in Honen Yahr and UPDRS scores (HP-200 PD study group, JAMC 1995)

## Mucuna in PD

- Blinded cross over study (n=8) in PD participants that had a short l-dopa response and dyskinesias
- Challenged with 200/50 L-dopa/carbidopa and then given 15g or 30g mucuna
- Three challenges within one week
- “On” time for medication significantly increased by mean of 37 minutes with 30 g of mucuna
- No difference in dyskinesias
- Side effects mild, nausea, dizziness, stomach ache

Katzenschlager et al. J Neurol. Neurosurg. Psychiatry 2004

## Mucuna Summary

- Having carbidopa before mucuna increased l-dopa absorption
- Studies suggest that adding mucuna to l-dopa may be safe
- Longest study with mucuna 84 days, not sure what side effects for long-term therapy

## Conclusions

- Safe and low cost therapies best
- Acupuncture, Tai Chi, and Mind-body Stress Reductions Therapies may benefit PD and will not have drug interactions
- In proper doses some supplements may benefit PD, drug interactions should be checked

Thank You



Questions

