

Stanford  
Neurosciences  
Institute

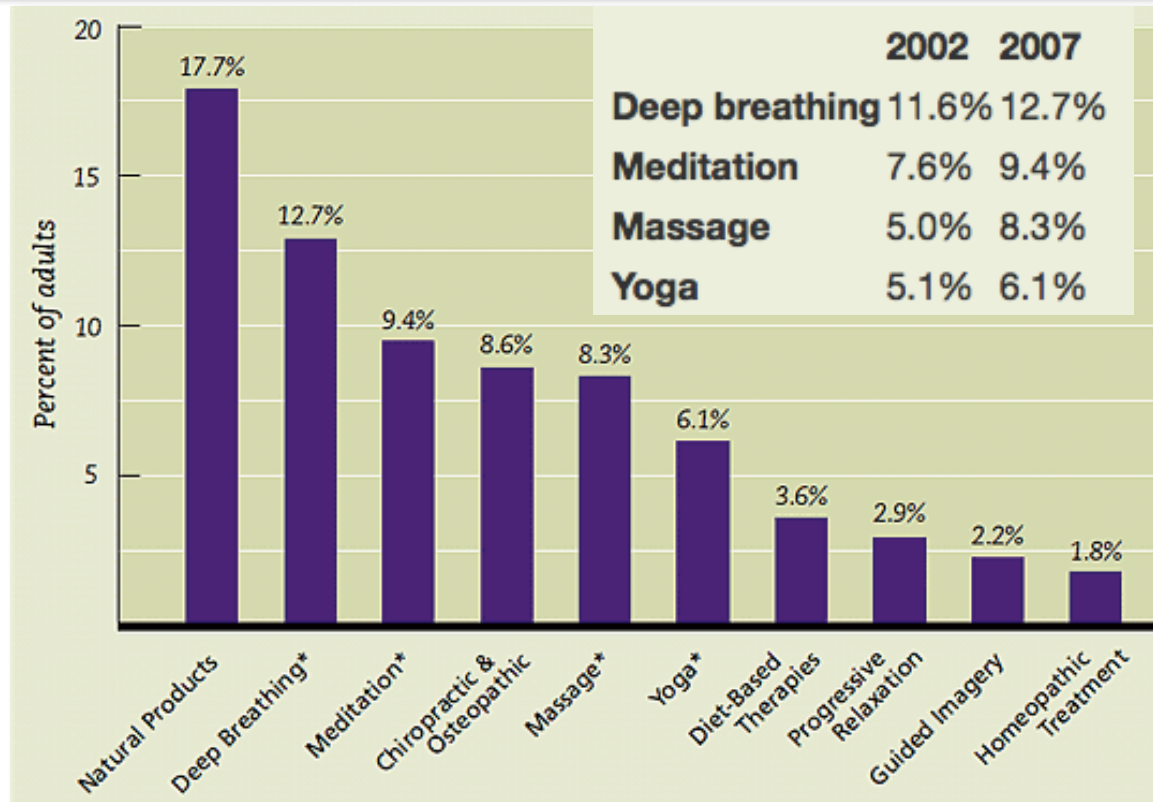
# COMPLEMENTARY THERAPIES IN PARKINSON DISEASE



Veronica E. Santini, MD, MA  
Clinical Associate Professor  
Stanford Movement Disorders Center  
Department of Neurology  
Stanford University, School of Medicine

# Alternative Therapy Use

- 1/3 Americans use alternative therapies
- Doubled in persons > 65
- 40-63% in PD
  - 26% two therapies, 33% > 2, 12% > 5
  - Vitamins/herbs, massage, & acupuncture
- Out of pocket expense: \$27 billion



\*Therapies with significant increases between 2002 and 2007

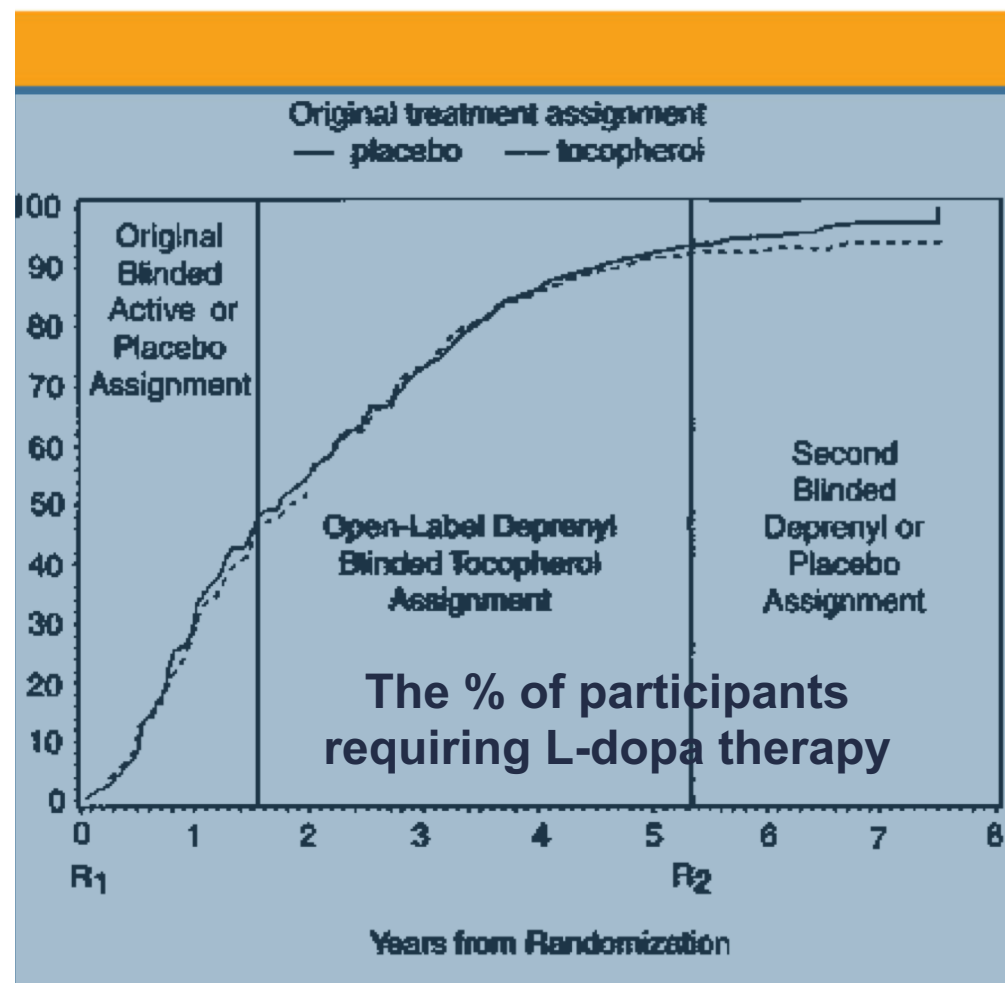
# VITAMIN SUPPLEMENTATION

---

# Vitamin E (tocopherol)

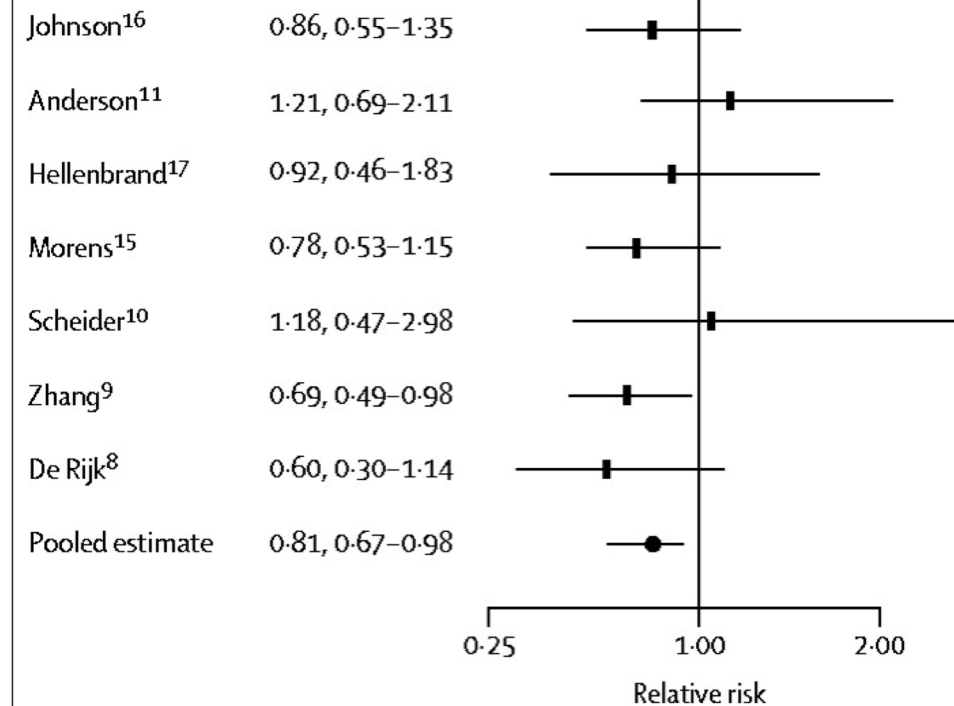
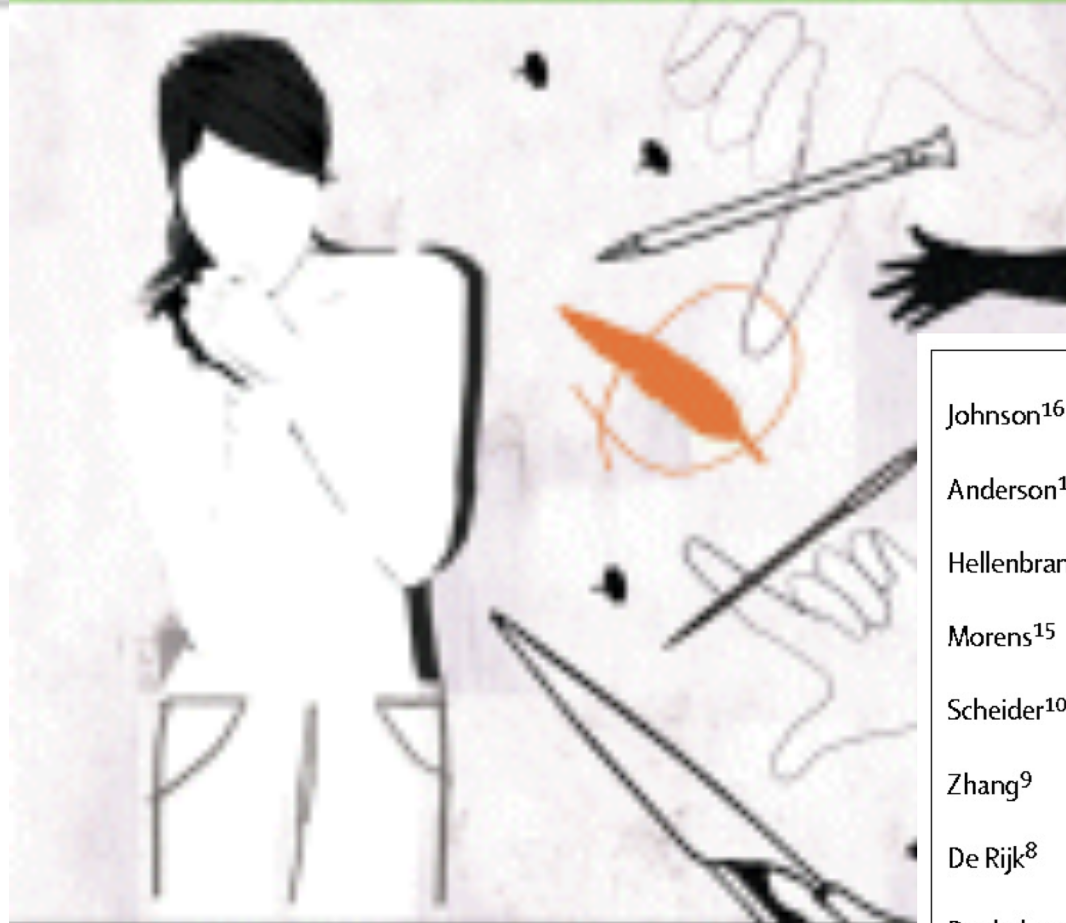
- 37% reported using  
(Rajendra, 2001)
- **DATATOP** (Shoulson, 1998)  
No benefit on:
  - Symptoms
  - Slowing disease progression

# ANNALS *of Neurology*



# Meta-Analysis of 7 Vitamin E Studies *(Etminan, 2005)*

**Positive** effect of **moderate** dietary vitamin E intake and protection against development of PD



THE LANCET **Neurology**

# Vitamin C

(Ascorbic Acid)

Can increase levels of levodopa, thereby prolonging benefit of action *(Reilly, 1983)*



Original Investigation | CLINICAL TRIAL

# A Randomized Clinical Trial of High-Dosage Coenzyme Q10 in Early Parkinson Disease No Evidence of Benefit

The Parkinson Study Group QE3 Investigators

**RESULTS** The baseline characteristics of the participants were well balanced, the mean age was 62.5 years, 66% of participants were male, and the mean baseline total UPDRS score was 22.7. A total of 267 participants required treatment (94 received placebo, 87 received 1200 mg/d of CoQ10, and 86 received 2400 mg/d of CoQ10), and 65 participants (29 who received placebo, 19 who received 1200 mg/d of CoQ10, and 17 who received 2400 mg/d of CoQ10) withdrew prematurely. Treatments were well tolerated with no safety concerns. The study was terminated after a prespecified futility criterion was reached. At study termination, both active treatment groups showed slight adverse trends relative to placebo. Adjusted mean changes (worsening) in total UPDRS scores from baseline to final visit were 6.9 points (placebo), 7.5 points (1200 mg/d of CoQ10;  $P = .49$  relative to placebo), and 8.0 points (2400 mg/d of CoQ10;  $P = .21$  relative to placebo).

# Meta Analysis of B Vitamins *(Shen, 2015)*

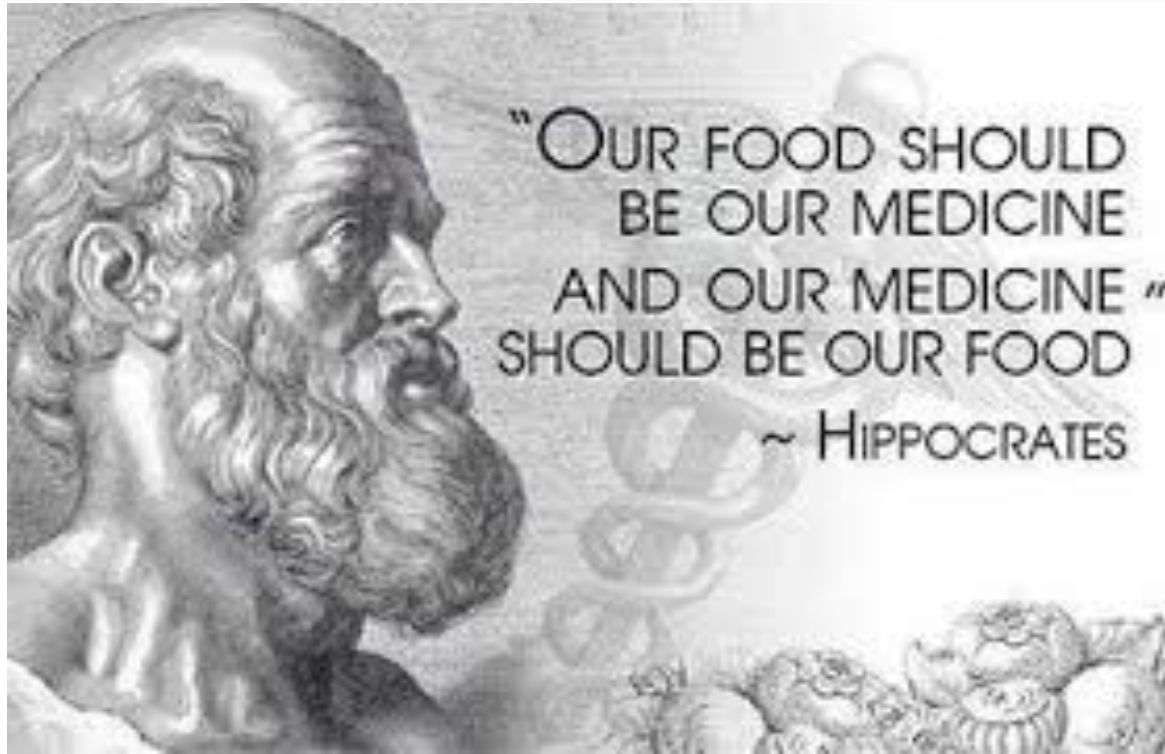
---

- **Folate**
  - No difference bw levels in PD and control groups
  - Dietary intake did not protect against PD development
- **Vitamin B12**
  - Levels lower in PD group
  - Dietary intake did not protect against PD development
- **Vitamin B6**
  - May be associated with decreased risk of PD development



# FOOD & HERB SUPPLEMENTATION

---





©W J Hayden

# Mucuna pruriens (*atmagupta*)

# PSG

PARKINSON STUDY GROUP

**CCLXI. ISOLATION OF *l*-3:4-DIHYDROXY-PHENYLALANINE FROM THE SEEDS OF *MUCUNA PRURIENS***

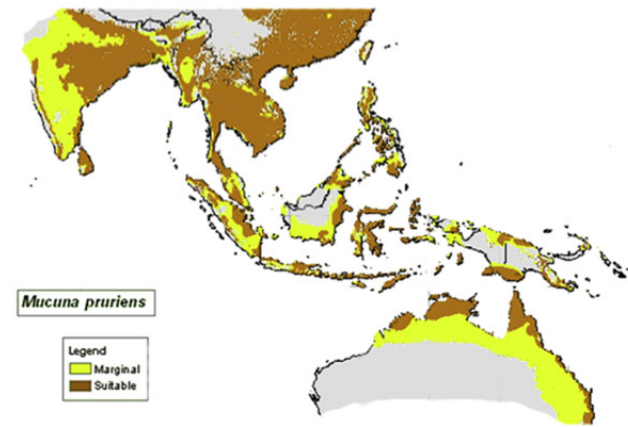
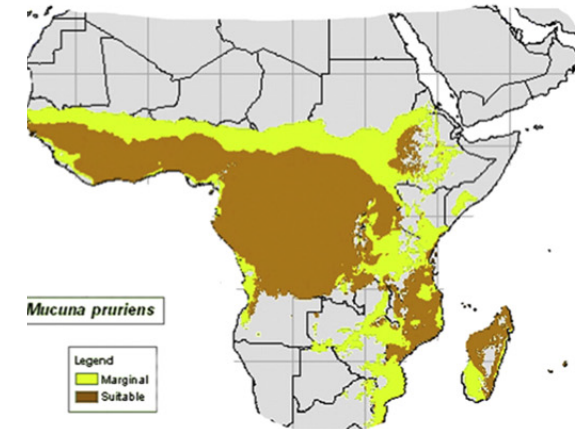
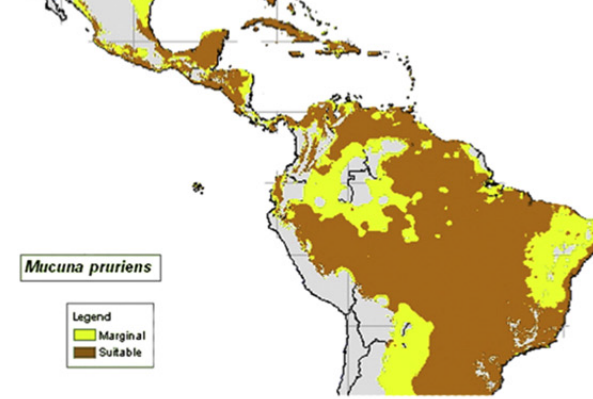
**BY MANAYATH DAMODARAN AND RAGHAVIAH RAMASWAMY**

*From the University Biochemical Laboratory, Chepauk, Madras*

*(Received 4 October 1937)*

# Mucuna pruriens

- 45g daily (EQ. 1500mg of L-Dopa) may be efficacious
  - May have faster onset of action
  - May have longer duration of action
  - May provide less clinical benefit
- Adverse effects:
  - GI distress
  - Insomnia
  - Dyskinesias



# Diets

---

- **Low fat OR Ketogenic:**
  - Decrease in motor & nonmotor symptoms
  - Perhaps greater or no effect of medications
  - Patients lose weight
- **Mediterranean**
  - Perhaps reduction in marker of rate of progression
- **Dairy**
  - Increased incidence of PD
  - Possible increased in marker of rate of progression

# Amino Acids in Parkinson disease

---

- PD causes progressive loss of dopamine, norepinephrine, acetylcholine, and serotonin producing neurons
- Many studies on blood or brain levels of amino acids in PD and how medications alter these levels too
- Supplementing with amino acids can even block medication effects

# Glutathione (and NAC)

---

- Previously oral supplements studied without benefit
- More recent randomized, placebo-controlled study (high quality) showed benefit in:
  - Imaging markers
  - Motor and nonmotor symptoms
- No significant side effects
- BUT there were study limitations:
  - study was small
  - IV therapy was given with oral supplements

# FDA acts against Duluth firm selling dietary supplements

The company has agreed to change its marketing tactics.

- \$3600 minimum out of pocket expense annually
- Websites with claims that the physicians do not know how to treat or that traditional therapies are the cause of disease symptoms

The medical board has taken several disciplinary actions against him, starting in 1996 when it suspended his license after he was hospitalized in Duluth for bipolar disorder with sleep deprivation. Later actions show continued concern over his ability to practice. It suspended his license again in 2001 after a skills audit "identified concerns with [his] medical knowledge, prescribing practices, competency, and recordkeeping," but stayed the suspension contingent on his full compliance with the terms, provisions and deadlines set by the board. The license was reinstated in 2005.



# Dietary Supplement Health and Education Act of 1994 (DSHEA)

---

- Excludes supplements marketed *before* 1994
- Must provide:
  - Reasonable evidence of their safety, or
  - Reasonable expectations of their safety,
  - NOT required to demonstrate supplements safety *before* marketing the supplements
- The FDA can only ban a supplement if **PROOF** that the supplement is dangerous
  - Reporting mechanisms are inadequate
  - Never rigorously studied for safety or as effective therapy





---

***NATURAL MEDICINES***  
***COMPREHENSIVE DATABASE***



# A Word of Caution

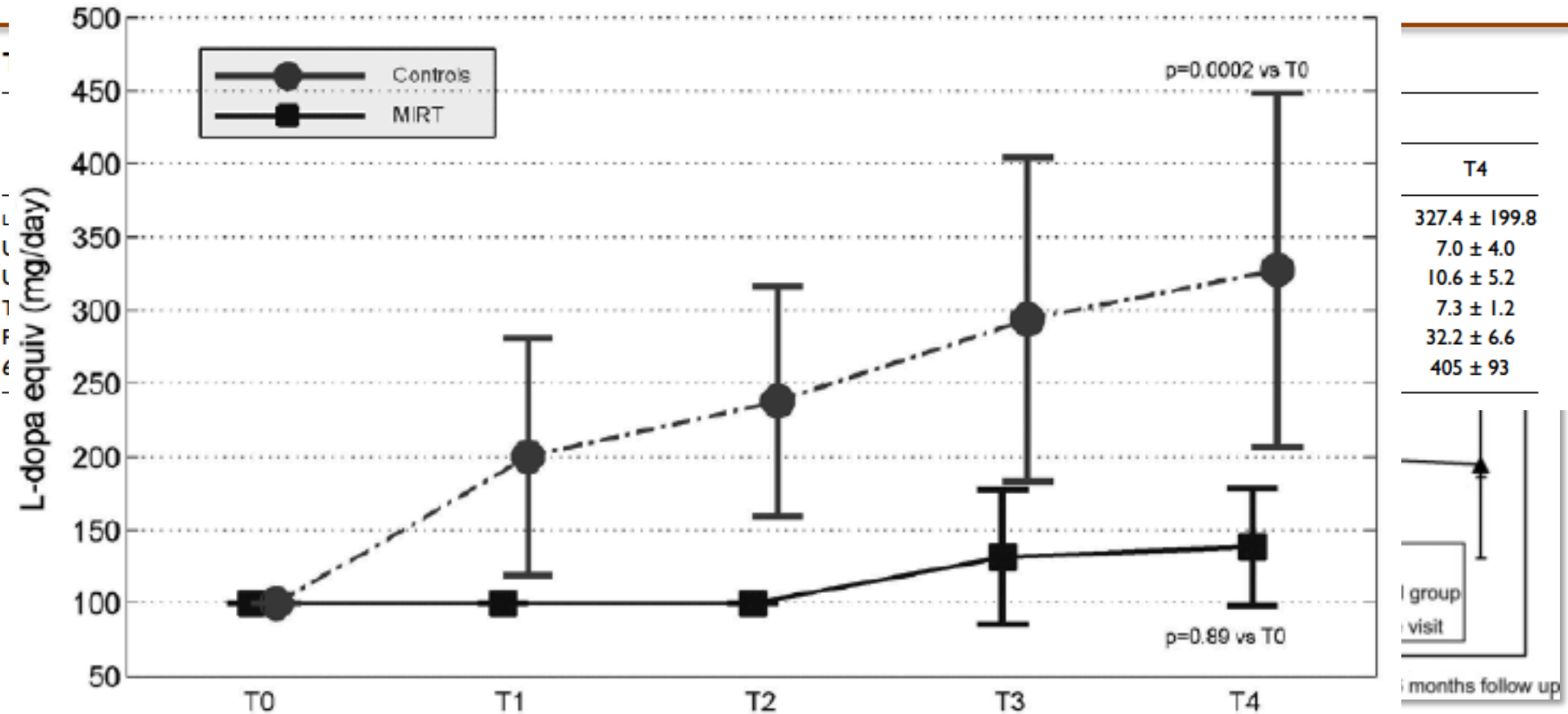
---

- Highly recommended to treat symptoms causing impairment → Why?
  - Acquisition of disabilities
  - Psychological factors: denial, fear, misunderstanding of medication treatments
  - Improve quality of life measures

# EXERCISE IN PARKINSON DISEASE

---

# Neuroprotection- Translation to Clinical



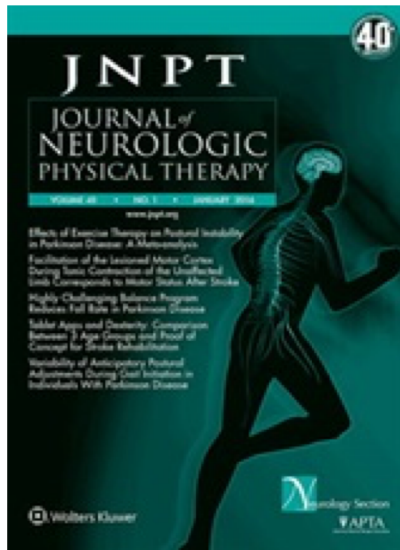
ORIGINAL ARTICLE

# Tai Chi and Postural Stability in Patients with Parkinson's Disease

Fuzhong Li, Ph.D., Peter Harmer, Ph.D., M.P.H., Kathleen Fitzgerald, M.D.,  
Elizabeth Eckstrom, M.D., M.P.H., Ronald Stock, M.D., Johnny Galver, P.T.,  
Gianni Maddalozzo, Ph.D., and Sara S. Batya, M.D.

ABSTRACT

# Balance Training – Intensity Matters!



## RESEARCH ARTICLES

### Highly Challenging Balance Program Reduces Fall Rate in Parkinson Disease

*David Sparrow, DSc, Tamara R. DeAngelis, PT, DPT, GCS, Kathryn Hendron, PT, DPT, NCS, Cathi A. Thomas, RN, MS, CNRN, Marie Saint-Hilaire, MD, FRCPC, and Terry Ellis, PT, PhD, NCS*

THERE ARE NO PATIENTS. THERE ARE ONLY DANCERS.

# CAPTURING GRACE



# Summary of Exercise Data

---

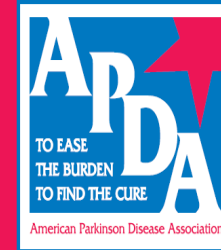
1. Associated with **lower risk** of PD **development**
2. Has been shown to **improve** disease symptoms:
  - Mobility, balance, and gait
  - Quality of Life
3. Neuroprotective effects may be **expected** in PD as suggested by animal studies, but further research is needed.



# My Practice Philosophies

---

- At diagnosis, discuss exercise!
- Physical, occupational, speech therapies
  - At least once yearly or as much as insurance will pay
- Social outings/support groups
- Education on disease
- Importance of Healthy Living
- Addressing of nonmotor symptoms, particularly depression.



**BE ACTIVE  
& BEYOND**

A Guide to Exercise and Wellness  
for People with Parkinson's Disease

<https://stanfordhealthcare.org/for-patients-visitors/neuroscience-supportive-care-program.html#exercise>



Patients should have rest, food,  
fresh air, and exercise - the  
quadrangle of health.

~ William Osler

AZ QUOTES



Stanford University School of Medicine and  
the Stanford Movement Disorders  
Team