

# **Diet as an analgesic modality - II**

**John X. Pereira & Yoram Shir  
2009 CPS annual Meeting**



**Quebec**





Centre universitaire de santé McGill  
McGill University Health Centre

# You are what you eat - diet for chronic pain

**Yoram Shir**  
**Pain Centre**  
**McGill University Health Centre**  
**Montreal**

# Disclosure statement information

The speaker has no financial interest, investment or research collaboration of any kind in a company whose interests are in the area to be discussed in this talk. No support of any kind was given by such company to the speaker

## Switching from pathogenetic treatment with alpha-lipoic acid to gabapentin and other analgesics in painful diabetic neuropathy: a real-world study in outpatients<sup>1</sup>

- 443 chronic DM patients treated with lipoic acid (600mg/d) for a mean period of 5 years
- Switched to gabapentin (600-2400mg/d) or D/C therapy
- In the untreated group 73% developed pain within 2 weeks
- In the gabapentin group:
  - 45% developed side effects and stopped treatment
  - 55% of patients tolerating gabapentin did not respond to a dose of 2400mg/g

<sup>1</sup>Ruessmann HJ et al, J Diabetes Complications 23;174:2009



**From the perspective of the popular  
media**

# Neurological Associates Four F's Diet for pain

H. H., M.D.

...excludes foods that...aggravate chronic pain (i.e., 5 C's: cookies, cakes, chocolate, cocktails & candy)...avoid internal organ meats (e.g., liver, sausage, and hot dogs)... emphasizes foods that help the inhibitory nerve cells that suppress the pain input (4 F's: Fresh fruit, fresh vegetables, fish, and fowl).

By doing so, the patient's weight normalizes itself automatically...

## The four F's:

- Fresh Fruit - not canned.
- Fresh vegetables - Olive oil is the best cooking oil
- Fish - baked or broiled, use fresh lemon juice...
- Fowl - skinned! Not fried...

## Foods allowed rarely or sparingly

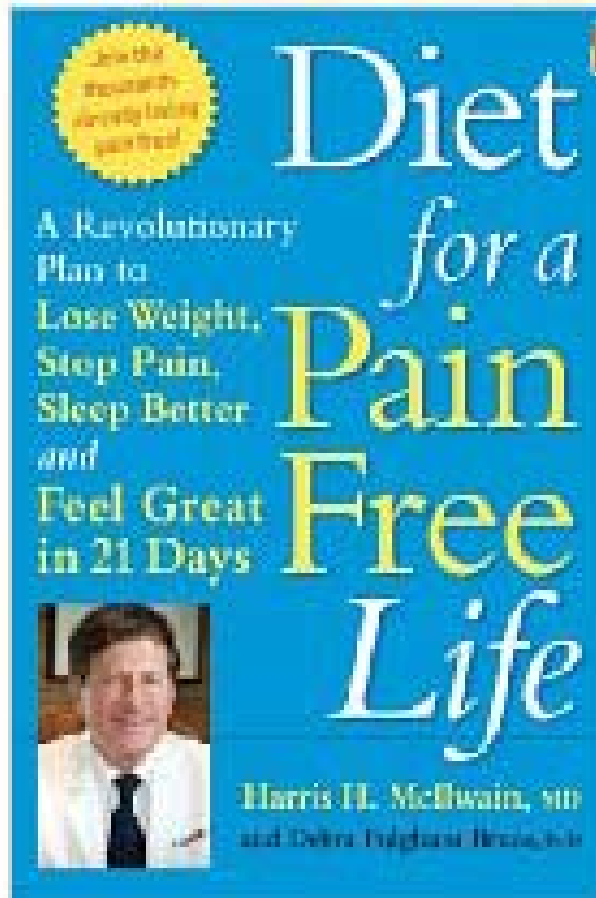
- No Coffee (may be replaced with ice tea)
- Lamb
- Tea
- Pulp of potato (may fry in olive oil)

The  
**Chronic Pain  
Diet Book**



NEVILLE SHONE

Click to **LOOK INSIDE!**



Diet for a Pain-Free Life: A Revolutionary Plan to Lose Weight,  
Stop Pain, Sleep Better and Feel Great in 21 Days

**How to participate in the original Diet  
for a Pain-Free Life...**

**Call Ginny at TAMPA MEDICAL GROUP  
(879-0025 Ext. 2223) or [e-mail](#) us**

## **Level 1 (called Jump Start):**

Change a lifetime of poor eating habits...eliminate most animal foods from your diet, along with processed and packaged foods (e.g., chips, cookies, crackers, sweetened cereals, French fries, shakes & onion rings)

## How to get rid of sciatica?

Garlic milk... is prepared by adding the pulp of the crushed garlic in uncooked buffalo milk. The proportion is four cloves to 110 ml of milk

Nutmeg...should be coarsely powdered and fired in gingelly oil... this oil can be applied beneficially on the affected parts as a pain reliever.



The banner features a stylized emu logo on the left. The main text 'Special Offer' is in a large, yellow, cursive font. Below it, 'First 200 Customers - Limited Time Only' is written in a smaller, yellow, cursive font. A red starburst graphic on the right contains the text 'Save \$36'. At the bottom, the text 'When you place your order before Thursday 30th April 2009' is displayed in a black, sans-serif font.

Save  
\$36

*Special Offer*

*First 200 Customers - Limited Time Only*

When you place your order before Thursday 30th April 2009

Pure **Emu Oil** is a natural Australian product by....  
Great for arthritis sufferers, helping to ease muscle aches, joint pains associated with arthritis, sports Injuries, and back pain

# Why are they so happy?



Time Magazine, 2006

Probably because the greens the family eats are peas and not **SOY**



**Will soy make my son gay?\***



\*Julia McKinnell, Thursday, December 4, 2008, [Macleans.ca](http://Macleans.ca)

## Questions asked about soy:

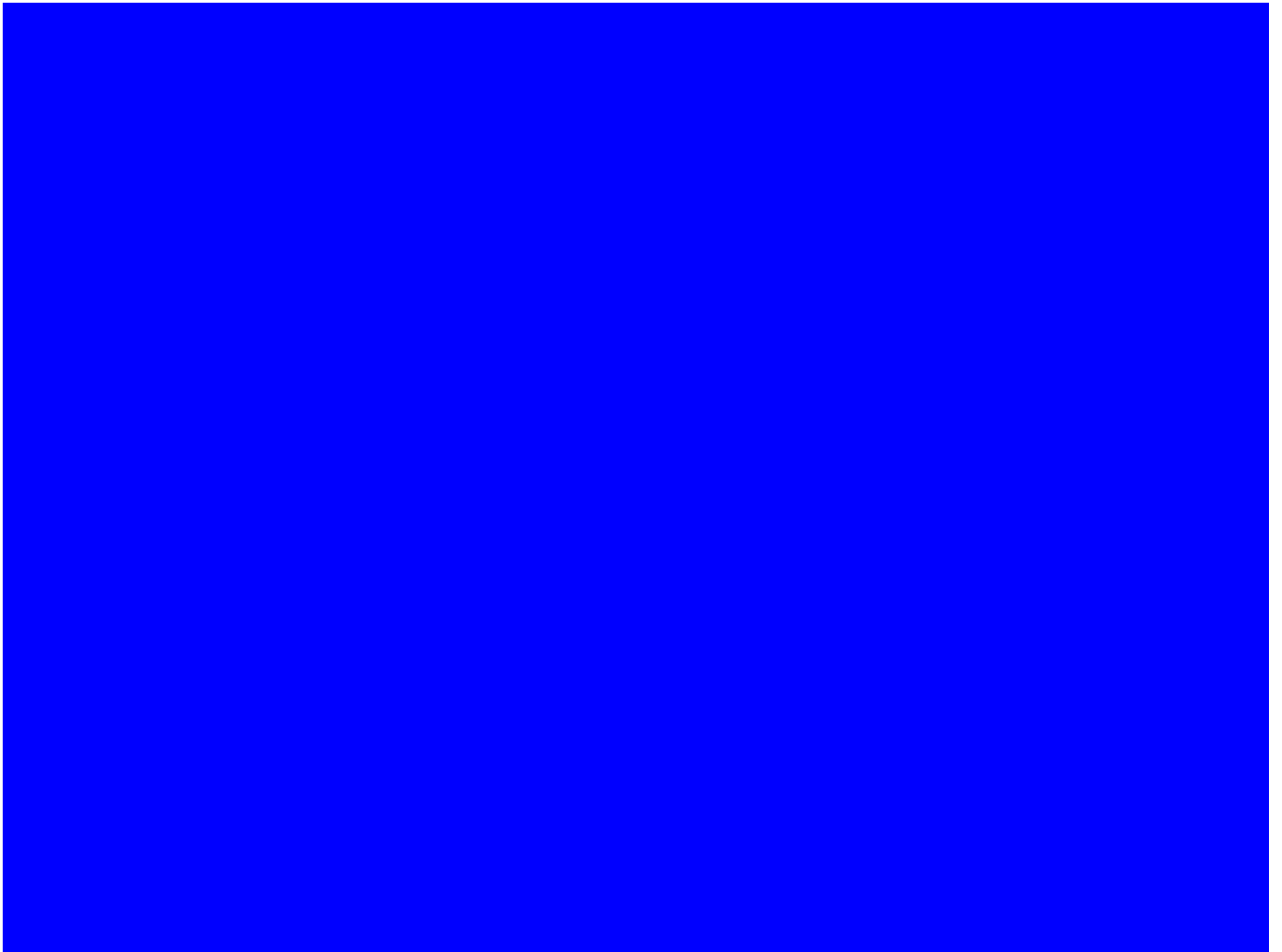
- Does it boost brain power or dementia?
- Does it fight cancer?
- Does it shrink penises?
- Should boys drink it or will it turn them gays?
- Can soy affect menstruation?
- Is it true tofu gives you Alzheimer's?
- I really want to use soy but how do you handle the hair loss thing?



## Dietary analgesia:

Similar to other domains of CAM, there is an unhealthy dichotomy between public's beliefs and the traditional medical and scientific communities

We have enough clinical & scientific evidence to support a more rigorous exploration of the field



# **Developing 'diet-for pain' research program**

**Yoram Shir**

**Pain Centre**

**McGill University Health Centre**

# Can we learn something from our patients?

- A.N., a 61 years old woman of Indian origin with PHN having problems with curry
- S.D., a 54 years old woman with painful bilateral breast cysts having problems with coffee
- N.M., a 40 years old woman with post-traumatic neuropathic pain relieved by soy

# Soy-induced analgesia

## Rodents:

- Soy protein and oil decreased nociception in models of:
  - Post traumatic nerve injury<sup>1</sup>
  - Bone cancer pain<sup>2</sup>

<sup>1</sup>Shir Y et al Anesthesiology 95;1238:2001

<sup>2</sup>Zhao C et al, J Pain 5;104:2004

# How to proceed?

- Isolating the specific analgesic ingredient/s in soy is not practical:
  - Soy protein alone contains hundreds of possible targets (e.g., phytoestrogens, phytates, saponins, phenolic acids)
- Therefore, we should move early from the lab to the clinical setting using available commercial products

# Soy-induced analgesia

## Humans:

- Soy protein mildly decreased cyclical breast pain in healthy women<sup>1</sup>
- Soy decreased pain associated with osteoarthritis<sup>2</sup>
- Soy-enriched diet could decrease chronic post-traumatic neuropathic pain<sup>3</sup>

<sup>1</sup>McFadyen IJ et al, Breast 9;271:2000

<sup>2</sup>Arjmandi BH, et al, Phytomedicine 11;567:2004

<sup>3</sup>Shir Y, et al, Ann Meeting CPS, Halifax 2005 (abstract)



# Soy in trigeminal neuralgia – the Australian angle

- Initiated by the Trigeminal Neuralgia Association of Australia
- Irene Wood has been running this charity organization in the last 9 years, seeking solutions to this intractable pain syndrome



## Pain diary – TN patient from Australia

Name: \_\_\_\_\_ Gender: Male Age: 81

Pain History: since 2000

Diagnosed by Neurologist as trigeminal neuralgia.

Trigger = touch

**Before Soy Diet: Date 23 June 2008**

**This was how I was feeling before soy**

<b>Location of Pain</b>	<b>Pain Sensation</b>	<b>Pain Level</b> 0 = no pain 10 = worst pain.	<b>Number of Strikes per day</b>
RH Near Nose	<b>Burning</b> , and <b>Electrical shock strikes</b>	10	Varies.

<b><u>Medication/s</u></b>	<b><u>Dose</u></b>	<b><u>Response</u></b>
Tegretol (CBZ)	400mg X twice a day	“ I do have days when there is no pain at all.”

## Start of Soy in Diet : 23 June 2008

**Please record your Pain Progress after starting on Soy Diet**

*\* please see next page for comments*

<b>Date</b>	<b>Soy Products</b>	<b>Mg/ml</b>	<b>Times per day X week</b>	<b>Pain Level</b>	<b>Meds</b>
23 Jun	Sanitarium Soy Milk	150 ml	1 X day X wk	10*	
30Jun	Sanitarium Soy Milk	150ml	1 X day X wk	0	800mg CBZ
7 Jul	Sanitarium Soy Milk	150 ml	1 X day X wk	0 *	800mg CBZ
15 Jul	Vita Soy Milk	150 ml	1 X day X wk	0 *	800mg CBZ
21 Jul	Sanitarium Soy Milk	150 ml	1X day X wk	0 *	800mg CBZ
28 Jul	Sanitarium Soy Milk	150 ml	1 X day X wk	8 *	800mg CBZ
3 Aug	Sanitarium Soy Milk	150 ml	1 X day X wk	0 *	800mg CBZ
8 Aug	Sanitarium Soy Milk	150 ml	1 X day X wk	0 *	800mg CBZ
25 Aug	Vita Soy Milk	150 ml	1 X day X wk	0 *	800mg CBZ
1 Sep	Vita Soy Milk	150 ml	1 X day X wk	0 *	<b>400mg CBZ</b>
8 Sep	Vita Soy Milk	150 ml	1 X day X wk	0 *	400 mg CBZ
15 Sep	Vita Soy Milk	150 ml	1X day X wk	0 *	800mg CBZ
21 Sep	Vita Soy Milk	150 ml	1 X day X wk	0 *	800mg CBZ
28 Sep					

<b>Date</b>	<b>Comments</b>
30Jun	There are times when I cannot touch my nose without getting an electrical shock. If I blow my nose during these times, I get an instant strike and a burning pain that last for approx. 15 – 20 mins.
7 Jul	My present condition is typical of my complaint. In the past I have had 7 – 10 days PAIN FREE and then the pain returns and could last up to 7 days
15 Jul	No burning pain only electrical strikes. “so far apart from one or two sharp strikes – no consistent pain at all.”
21 Jul	Painless except for occasional strike. Feel really good.
28 Jul	Since last report I have had at least 3 strikes per day followed by burning sensation lasting up to a minute.
3 Aug	Strikes per day - varies from 2 – 3 and some days much more. Burning pain can reach up to 10.
8 Aug	This week apart from a few very weak strikes, I have been pain free.
25 Aug	I am now into my THIRD painless week. I feel great at the moment. The only time I get a faint strike is when I clean my teeth.
1 Sep	Still no pain. I am feeling great. AS of today I am reducing my Tegretol from 800mg to 400mg per day.
8 Sep	Occasional twinges but NO continuous pain. Still feeling good.
15 Sep	I am still pain free except for the odd twinge which doesn't produce any prolonged pain. I have been alternating my Tegretol between 800 and 400mg – depending on the number of strikes. I still feel great.
21 Sep	Occasional strike but no lingering pain.

# Research plan – soy in TN

- Approximately 200 TN patients actively treated at the hospital
- 30 patients will be recruited for N of 1, double blind cross over study
- Isolated soy protein will be compared to milk protein
- Protein supplementation: 30-60g/day
- 3 therapeutic phases, each comprising of two 3 weeks periods

# Can preoperative consumption of soy protein prevent chronic post-mastectomy pain?

- ~30-50% of women with breast cancer develop post mastectomy pain
- We have shown in rats that preemptive soy supplementation could prevent the development of post-surgical neuropathic pain



- We are ready to start recruiting 220 women scheduled for breast cancer surgery & axillary lymph node dissection
- A double blind, prospective, NIH-supported study
- Women will receive soy or milk protein for 2 weeks prior to surgery
- FU period of 1 year postoperatively

# **The Effects of Soy Protein on Post-Thoracotomy Pain**

Jennifer A. Haythornthwaite, Ph.D

Johns Hopkins University

National Center for Complementary and  
Alternative Medicine (2007)

## Dietary Soy Supplement on Fibromyalgia Symptoms: A Randomized, Double-blind, Placebo-controlled, Early Phase Trial<sup>1</sup>

- 20g of soy protein supplementation for 6 weeks were not effective in decreasing pain and other fibromyalgia symptoms

<sup>1</sup>Wahner-Roedler DI et al, Evid Based Complement Alternat Med 2009 (in press)

# The role of omega-3 fatty acids

- Shown to be analgesic in:
  - Neck & back pain<sup>1</sup>
  - Rheumatoid arthritis<sup>2</sup>
  - Fibromyalgia?<sup>3</sup>
- Animals studies show that their deficit is associated with modified CA transmission<sup>4</sup>

<sup>1</sup>Marron JC et al, Surg Neurol 65;326:2006; <sup>2</sup>Fortin PR et al, J Clin Epidemiol 48;1379:1995; <sup>3</sup>Ozgoemen S et al, Int J Clin Pharmacol Ther 38;362:2000;

<sup>4</sup>Chalon S, Prostaglandins Leukot Essent Fatty Acids 75;259:2006

# Omega-3 fatty acids & pain

- Consuming omega-3-rich diet is associated with greater gray matter volume<sup>1</sup>
- Several brain regions protected by an EPA- and DHA- rich diet overlap the atrophied regions found in patients with fibromyalgia

<sup>1</sup>Conklin SM et al, Neurosci Lett 421;209:2007

# Clinical study: Omega-3 enriched diet in fibromyalgia

- We hypothesize that:
  - 8- week diet supplementation with EPA & DHA is superior to placebo to reduce pain and other symptoms of FM
  - omega-3 supplementation will increase gray matter density in brain areas previously found to be decreased in patients with FM

**Thank you**  
**Please eat healthy**

