

# The Ultimate Local Agriculture

by Steve Meyerowitz, Sproutman®

*Sproutman*®



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**Bean Sprouts: Green Pea, Adzuki, Lentil, Mung, Garbanzo**



# Is it only a Garnish?



Photos Courtesy of Rob Baan, Koppert Cress, Netherlands

# No. It's Real Food!





**EVEN IN WINTER!**





# Grains & Beans

**Lentils, mungs, garbanzo, peas, adzuki, soft & hard wheat, rye....**



Lentil, Adzuki, Mung,  
Greenpea



Soft White Wheat, Lentil,  
Adzuki, Mung, Greenpea



**BEANS OR GREENS**



# **Kamut & Garbanzos**

## **breads, dips, spreads**





# Sprout Dough & Sprout Bread



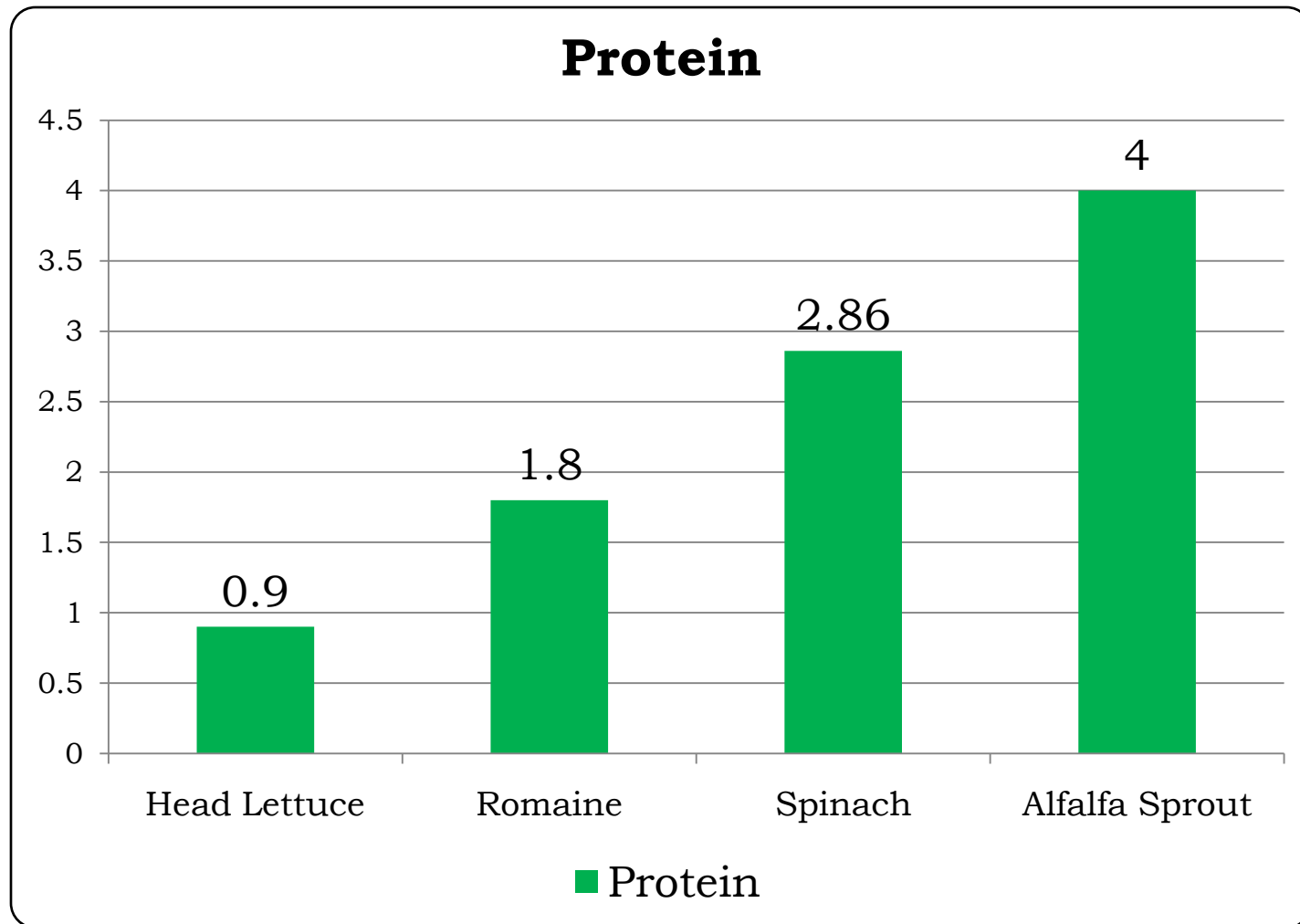




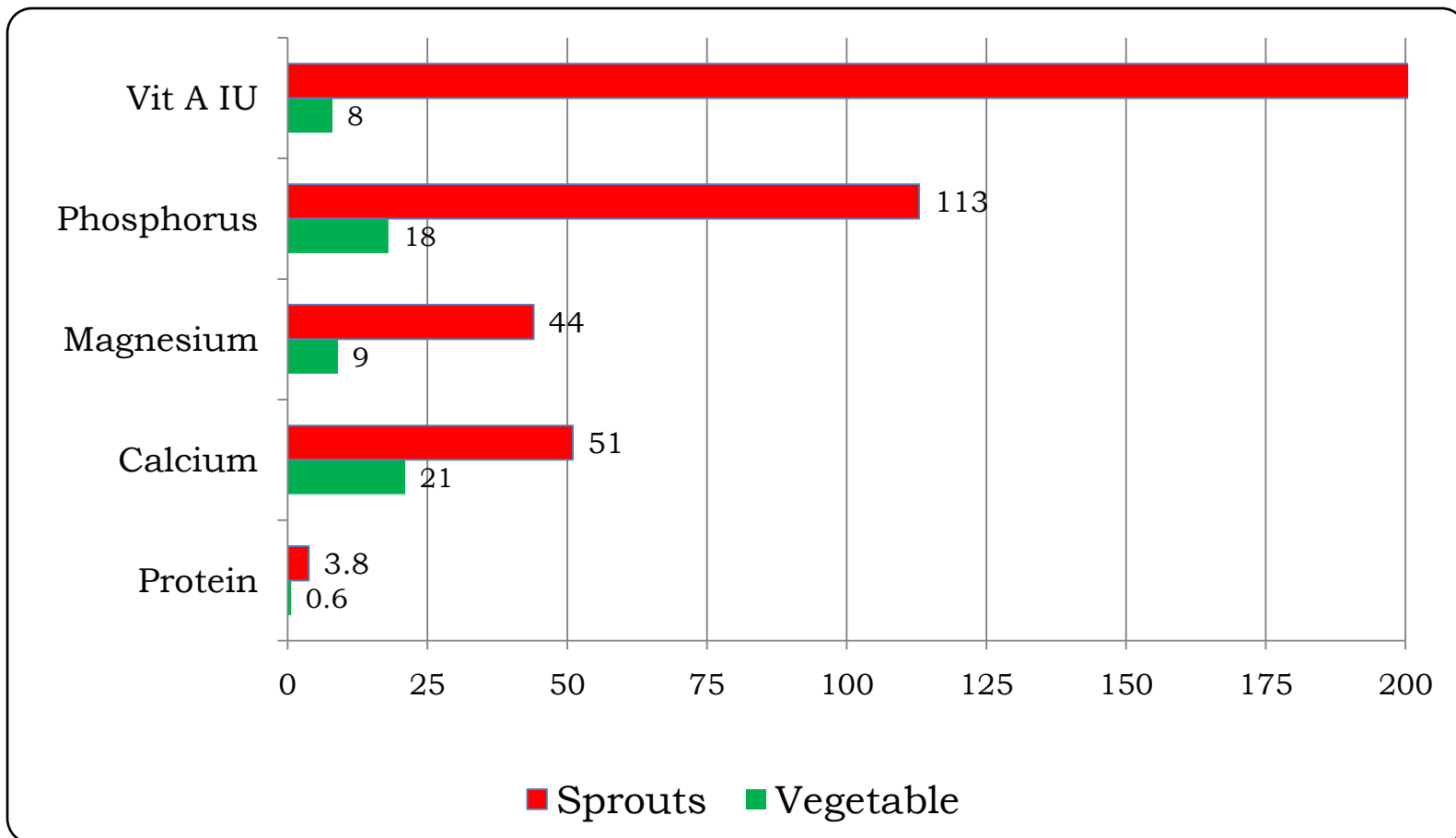
**nutrition**



# Protein in Leafy Greens



# Radish Sprout vs. Radish Vegetable

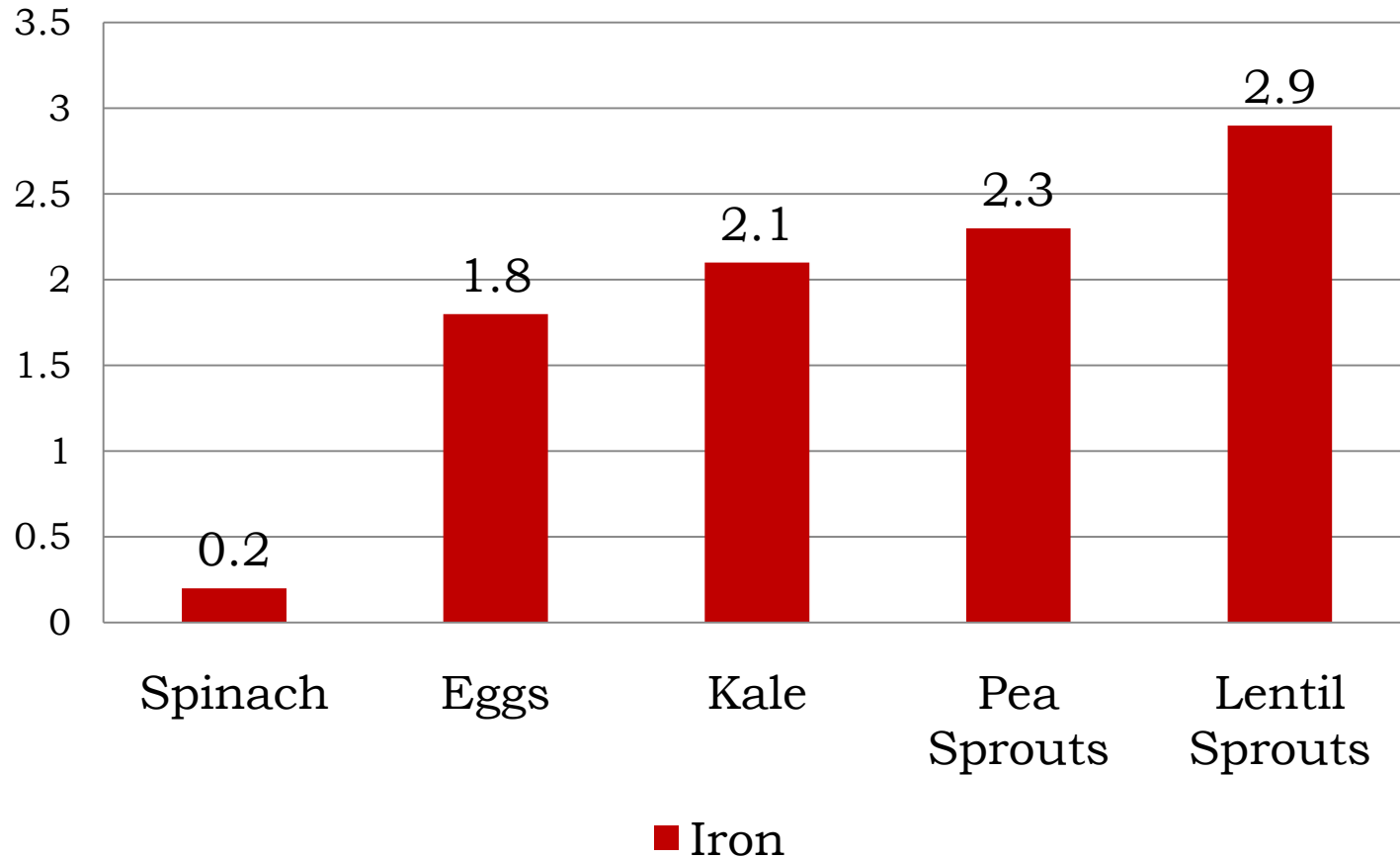


Radish Vegetable - 8 IU of Pro-Vitamin A

Radish Sprouts - 391 IU of Pro-Vitamin A

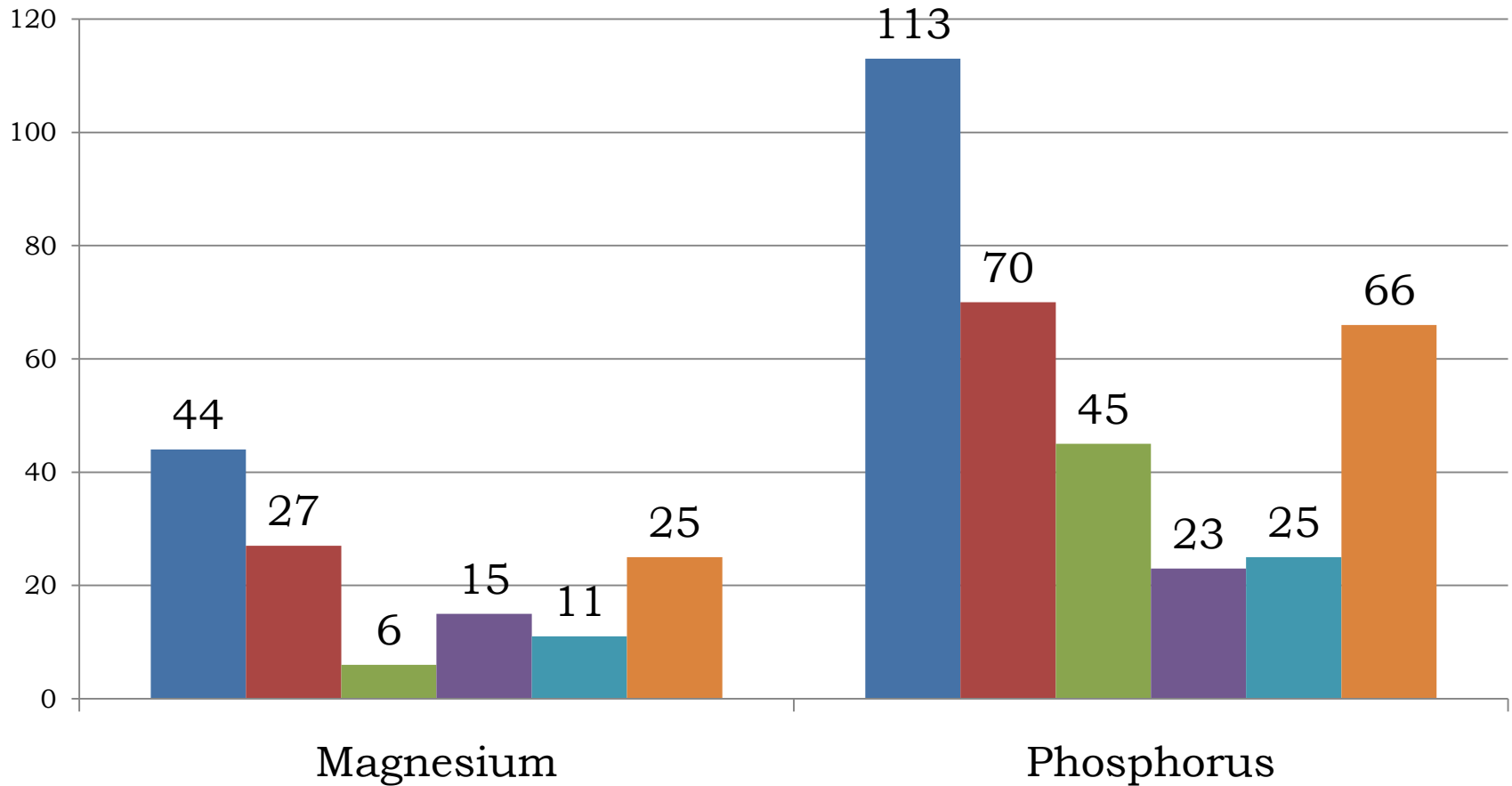


## Iron



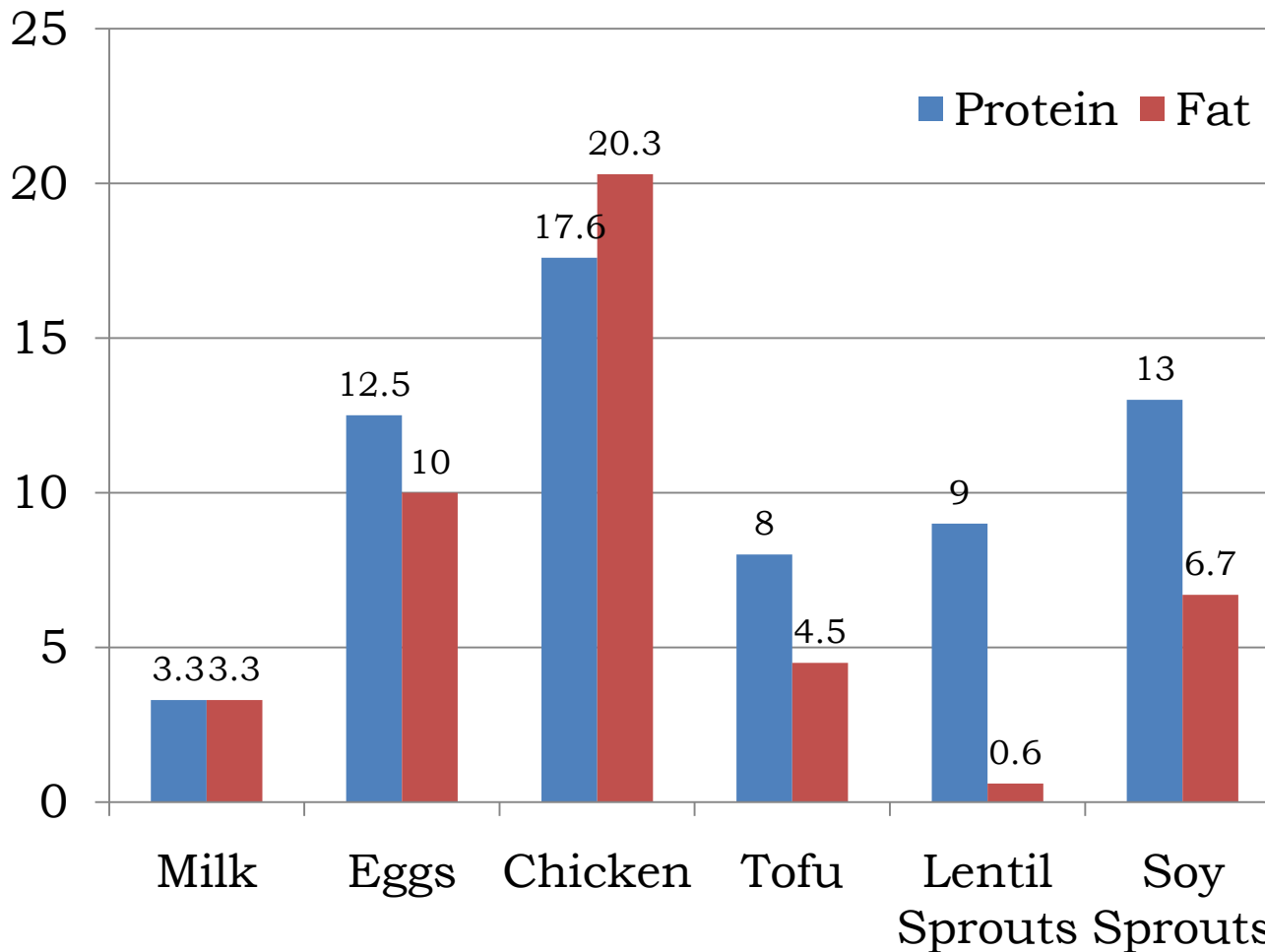
# Magnesium and Phosphorus

■ Radish Sprout ■ Alfalfa Sprout ■ Romaine  
■ Cabbage ■ Celery ■ Broccoli



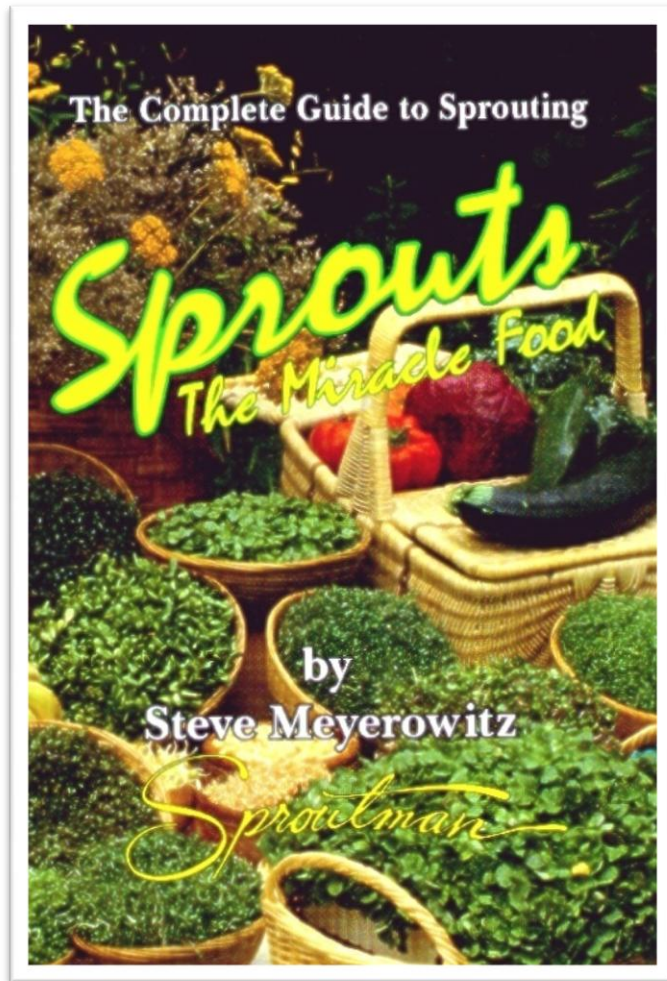


# Protein vs. Fat



Easy-to-digest Essential  
Fatty Acids

# Some Nutrition Here



# SPROUTS - FUNCTIONAL FOOD

- *Your food is your medicine and your medicine is your food.* – Hippocrates
- Great potential for phytochemicals. Functional for not just cancer, but also cardiovascular disease, hypertension, atherosclerosis, and diabetes.
- Best foods are Brassica family sprouts of broccoli, cauliflower, kale, etc. Broccoli Sprouts highest source of Glucosinolates.



# PHYTOCHEMICALS - MEDICINAL PLANT COMPOUNDS

- **PLANT ESTROGENS** - hot flashes, menopause, osteoporosis. PMS
- **SAPONINS** - Raises HDL. Sterols reduce cholesterol
- **ENZYMES** - Living Foods - Alive Right Up Time You Eat!
- **ANTI-OXIDANTS** – Anti-aging. Vitamin C, Polyphenols
- **ELECTROLYTES** – Hydration . Sodium and potassium salts
- **TRACE MINERALS** - Sulfur, Zinc, Manganese, Iodine, Iron, Selenium
- **BIO-FLAVONOIDS** - Cancer Prevention. Induces phase II enzymes. Quercetin - inflammation
- **CAROTENES** - over 800 of them!
- **INDOLES** - Anti-inflammatory, precursor to the Neurotransmitters Serotonin, Melatonin
- **ISOFLAVONES** - Anti-estrogenic, Helps Breast Tumors
- **SULPHUROPHANES** - Protective Enzymes Inhibit Tumor Growth
- **PHYTOSTEROLS** - Cardiovascular disease. Lowers total cholesterol, triglycerides, LDL.
- **FLAVONETRIN** - Relaxes smooth muscle tissues. Cramps and colic
- **ADAPTOGENIC HERB** - Balances estrogen levels in blood - high or low
- **RNA, DNA** - Synthesizes Protein - Life's Purest Energy

# Latest Research 2011

**"Sulforaphane Potentiates the Efficacy of 17-Allylamino 17-Demethoxygeldanamycin Against **Pancreatic Cancer** Through Enhanced Abrogation of Hsp90 Chaperone Function."** Nutr Cancer. 2011 Aug 29. Li Y, Zhang T, Schwartz SJ, Sun D.; Department of Pharmaceutical Sciences, College of Pharmacy, University of Michigan, Ann Arbor, Michigan , USA.

**"Broccoli ( Brassica oleracea var. italica) sprouts and extracts rich in glucosinolates and isothiocyanates affect **cholesterol** metabolism and genes involved in lipid homeostasis in hamsters"** Rodríguez-Cantú LN, Gutiérrez-Urbe JA, Arriola-Vucovich J, Díaz-De La Garza RI, Fahey JW, Serna-Saldivar SO. J Agric Food Chem. 2011 Feb 23;59(4):1095-103. Epub 2011 Jan 21. Departamento de Biotecnología e Ingeniería de Alimentos, Tecnológico de Monterrey, Avenida Eugenio Garza Sada 2501 Sur, CP 64849, Monterrey, NL, Mexico.

**"Sulforaphane Enhances Protection and Repair of Gastric Mucosa against Oxidative Stress in Vitro, and Demonstrates Anti-Inflammatory Effects on **Helicobacter pylori** Infected Gastric Mucosae in Mice and Human Subjects"** Curr Pharm Des. 2011;17(16):1532-40. Yanaka A. Department of Clinical Pharmacology, Faculty of Pharmaceutical Sciences, Tokyo University of Science, Tokyo, Japan.

**"Inhibition by wheat sprout (Triticum aestivum) juice of **bisphenol A**-induced oxidative stress in young women"** Mutat Res. 2011 Jun 28. Yi B, [Kasai H](#), Lee HS, Kang Y, Park JY, Yang M. Sookmyung Women's University, College of Pharmacy, Seoul 140-742, Republic of Korea.

# Latest Research 2010

- **"Effects of buckwheat sprouts on plasma and hepatic parameters in type 2 diabetic db/db mice"** J Food Sci. 2010 Nov-Dec;75(9):H294-9. doi: 10.1111/j.1750-3841.2010.01853.x. Watanabe M, Ayugase J. Natl. Agricultural Research Center for Tohoku Region, 4 Akahira, Shimokuriyagawa, Morioka, Iwate 020-0198, Japan
- **"Protective effect of sulforaphane against oxidative stress: Recent advances."**
- Exp Toxicol Pathol. 2010 Dec 1. Guerrero-Beltrán CE, Calderón-Oliver M, Pedraza-Chaverri J, Chirino YI. Departamento de Biología, Facultad de Química, Universidad Nacional Autónoma de México, 04510 México, DF, Mexico.
- **"Protective role of sulforaphane against oxidative stress mediated mitochondrial dysfunction induced by benzo(a)pyrene in female Swiss albino mice."** Pulm Pharmacol Ther. 2010 Sep 15. Kalpana Deepa Priya D, Gayathri R, Gunassekaran GR, Sakthisekaran D., Department of Medical Biochemistry, Dr. ALM Post Graduate Institute of Basic Medical Sciences, University of Madras, Taramani Campus, Chennai 600 113, Tamil Nadu, India.
- **"Sulforaphane Inhibits 4-Aminobiphenyl-induced DNA Damage in Bladder Cells and Tissues."** Carcinogenesis. 2010 Sep 1. Ding Y, Paonessa JD, Randall KL, Argoti D, Chen L, Vouros P, Zhang Y. Department of Cancer Prevention and Control, Roswell Park Cancer Institute, Buffalo, New York, 14263, USA.
- **"Sulforaphane, a dietary component of broccoli/broccoli sprouts, inhibits breast cancer stem cells."** Clin Cancer Res. 2010 May 1;16(9):2580-90. Epub 2010 Apr 13. Li Y, Zhang T, Korkaya H, Liu S, Lee HF, Newman B, Yu Y, Clouthier SG, Schwartz SJ, Wicha MS, Sun D. Department of Pharmaceutical Sciences, College of Pharmacy, University of Michigan, Ann Arbor, MI 48109, USA.
- **"Allyl Isothiocyanate as a Cancer Chemopreventive Phytochemical"** Molecular Nutrition & Food Research, Volume 54, Issue 1, pages 127–135, January 2010, Yuesheng Zhang, Department of Cancer Prevention and Control, Roswell Park Cancer Institute.

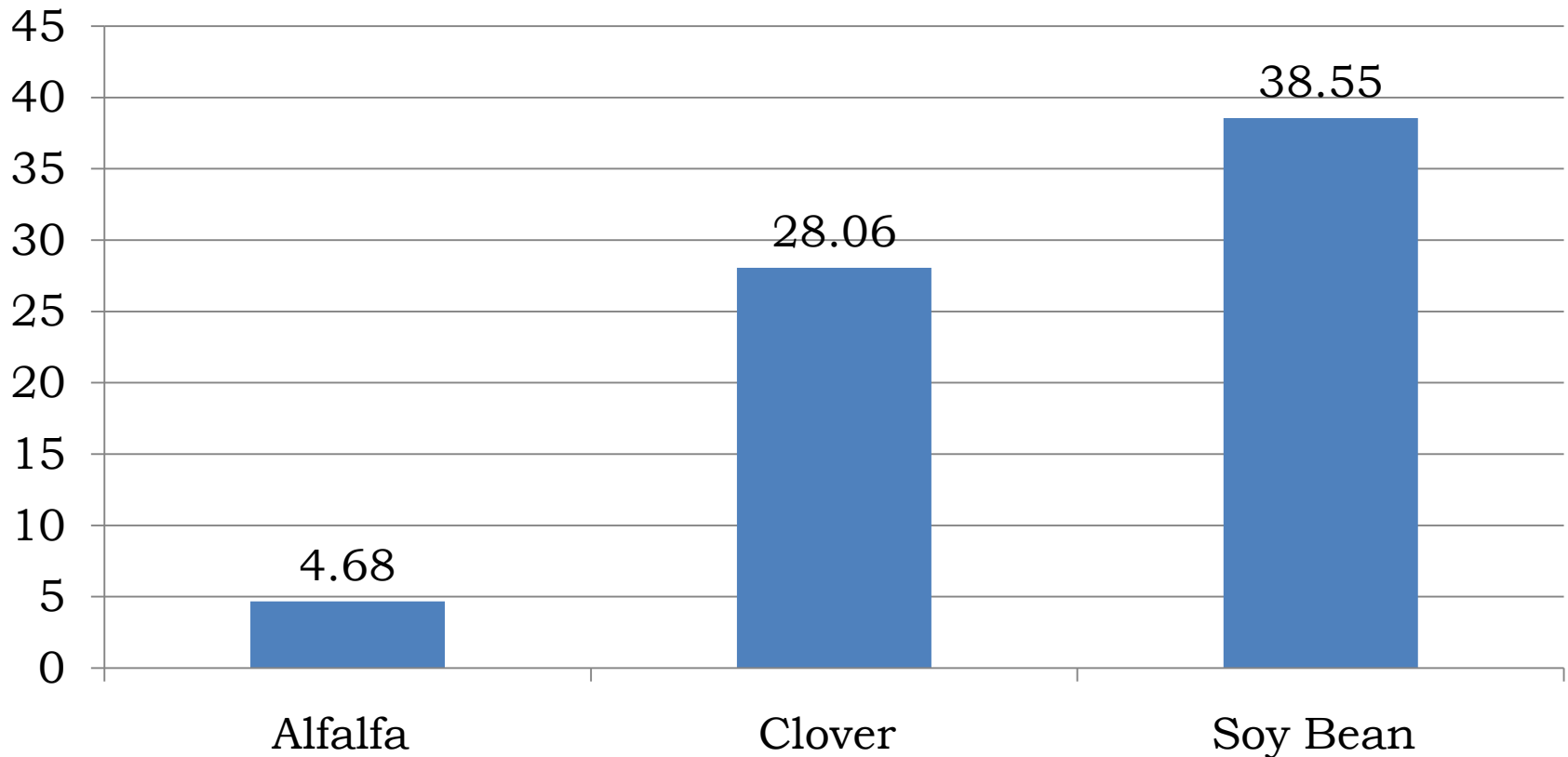


# Health Benefits of Sprout Phyto Estrogens

- **Menopause** - Increased risk of coronary heart disease
- **Menopause** - Increased risk of osteoporosis
  - Because of reduced levels of estrogen after menopause
- **Phytoestrogens** - natural alternative to Est. replacement therapy
- **Coumesterol** - Most potent phytoestrogen
- Decreases LDL (bad) cholesterol and total cholesterol
- Increases HDL (good) cholesterol
- **Prevents bone loss** in animal and human studies
- **Increases bone** formation and density
- **Anti-Carcinogenic** in animal and human studies
- Inhibits protein tyrosine kinases. Antioxidant effects
- Inhibit DNA topoisomerases. Suppress angiogenesis
- Research by Xia Xu, Ph.D. Dept of Food Science & Nutrition, University of Minnesota

# Phyto-Estrogens in Sprouts

Coumesterol mg/ 100g



**4,200% INCREASE IN SOYBEANS**

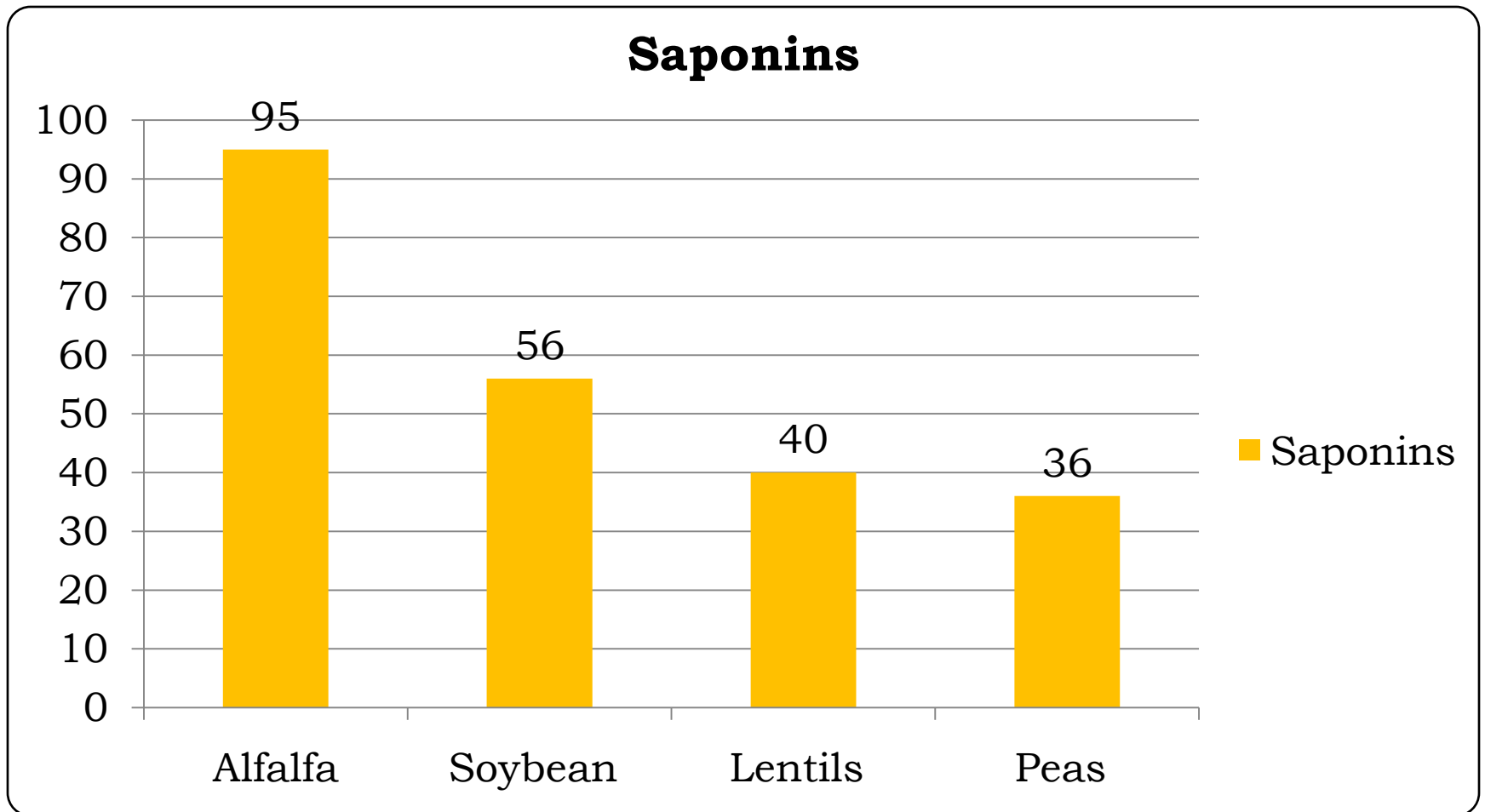
Research by Xia Xu, Ph.D. Dept of Food Science & Nutrition,  
University of Minnesota



# Sprout Saponins - Health Benefits

- Reduces cholesterol in animal and human studies
- Anti-Carcinogenic
- Prevents carcinogen formation in gut
- Stimulates the Immune system
- Increases activity of natural killer cells
- Increases activity of Cytotoxic T-Lymphocytes
- Increases interferon production

# Saponin Content of Sprouts



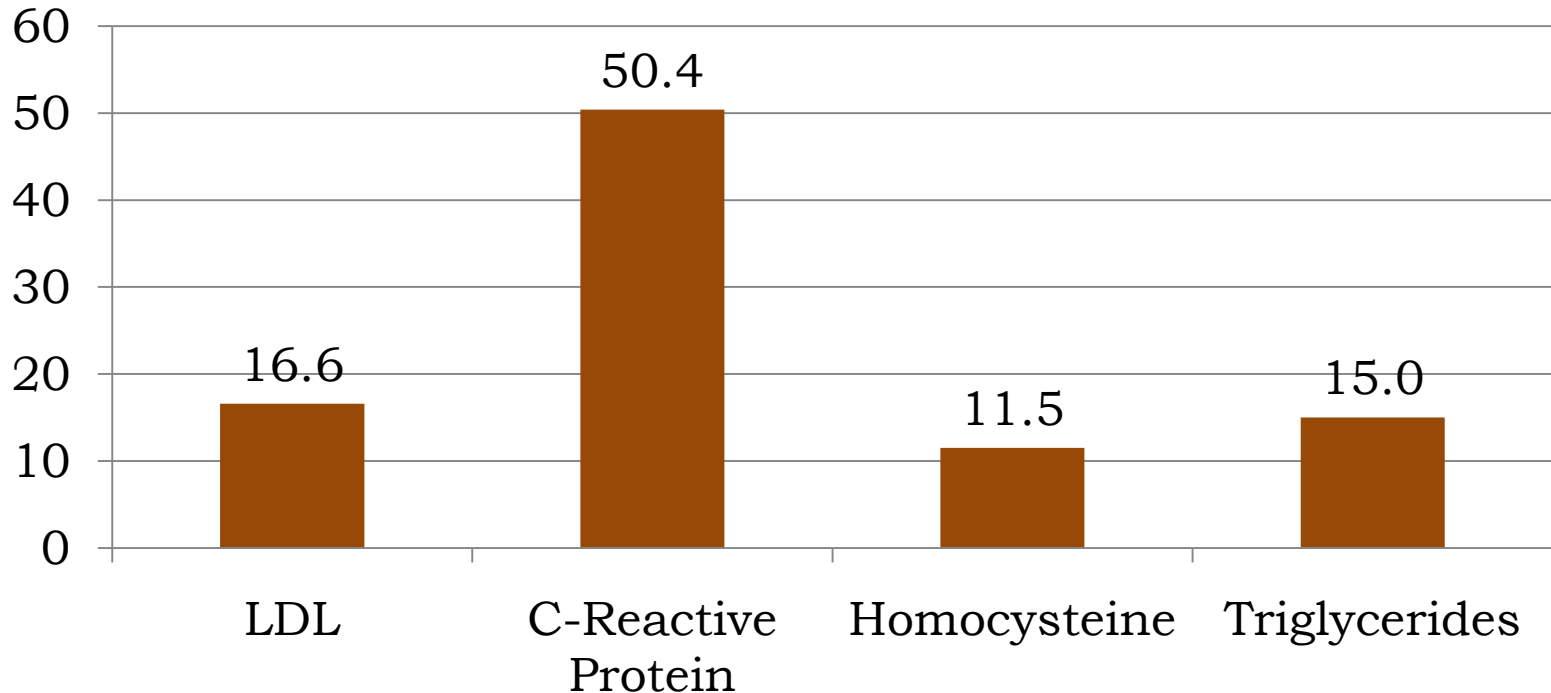
**450% INCREASE ALFALFA**

Research by Xia Xu, Ph.D. Dept of Food Science & Nutrition,  
University of Minnesota



# Alfalfa Sprouts Lower Cholesterol

## Percent Decrease



HDL Increased 11.2%

Clinical Studies by Lawrence D. Rink MD, FACC

# ANTI-AGING – BUCKWHEAT

Cholesterol, Anti-inflammatory, Diabetes, Anti-Oxidant

- Antioxidant Activity of **Buckwheat Sprouts**
  - Department of Food Science, Nutrition and Nutraceutical Biotechnology, Shih Chien University, Taiwan and National Agricultural Research Center for Tohoku Region, Morioka, Iwate, Japan. 2007
- *Reduced the cellular oxidative stress* because of its high rutin, Anthocyanin, and quercetin content. Abundant source of phenolic compounds, flavonoids, SOD
- "Effects of buckwheat sprouts on plasma and hepatic parameters in type 2 diabetic db/db mice" J

Food Sci. 2010 Nov-Dec;75(9):H294-9. doi: 10.1111/j.1750-3841.2010.01853.x. Watanabe M, Ayugase J. Natl. Agricultural Research Center for Tohoku Region, 4 Akahira, Shimokuriyagawa, Morioka, Iwate 020-0198, Japan

# DIABETES

- *The Effect of **Pre-Germinated Brown Rice** Intake on Blood Glucose in Rats*
- Department of Agricultural and Biological Chemistry, Nihon University, Kanagawa, Japan. 2004
- Pre-Germinated Brown Rice as compared with non-germinated white rice is **effective for the prevention of diabetes complications.**



# ULCERATIVE COLITIS

- Prebiotic from **Sprouted Barley** Treats Ulcerative Colitis
- Department of Internal Medicine, Shiga University of Medical Science, Japan. 2002
- Facilitates cell repair, generates fatty acid production by bifidobacterium. Heals colon wall. Patients with mild to moderate active ulcerative colitis who had been unresponsive to or intolerant **resulted in a significant clinical and endoscopic improvement after 4 weeks.**

# PARKINSON'S DISEASE

- **Fava Bean Sprouts** and Parkinson's Disease
- Fava bean sprouts are rich L-DOPA, the precursor of dopamine. Used in the management of Parkinson's disease.
- Department of Food Science, University of Massachusetts, Amherst, MA 2004
- ["L-DOPA and Total Phenolic Stimulation in Dark Germinated Fava Bean in Response to Peptide and Phytochemical Elicitors"](#), Process Biochemistry, Volume 37, Issue 11 , June 2002, Pages 1247-1256, Reena Randhir, Preethi Shetty and Kalidas Shetty, Department of Food Science, Chenoweth Laboratory, University of Massachusetts, Amherst, MA 01003, USA.
- ["Microwave-Induced Stimulation of L -DOPA, Phenolics and Antioxidant Activity in Fava Bean \(Vicia faba\) for Parkinson's Diet"](#), Process Biochemistry, Volume 39, Issue 11 , 30 July 2004, Pages 1775-1784, Reena Randhir and Kalidas Shetty, Chenoweth Laboratory, Department of Food Science, University of Massachusetts, Amherst, MA 01003, USA.

# PANCREATIC CANCER

~25 studies

- Natural Abundance of L-Canavanine, An Active **Anticancer Agent in Alfalfa**
- L-Canavanine: A Potential Chemotherapeutic Agent For **Human Pancreatic Cancer**
- University of Kentucky. 2000. Gerald A. Rosenthal and Palesa Nkomo
- L-Canavanine, a potentially toxic antimetabolite of L-arginine that is stored by many leguminous plants, has demonstrated “anti-neoplastic activity against a number of animal-bearing carcinomas and cancer cell lines.”
- Recent studies with MIAPaCa 2 and CFPAC have established canavanine's potential **anticancer potential against these human pancreatic adenocarcinomas**. Canavanine has promise as a lead compound in the development of a chemotherapeutic agent for the treatment of human pancreatic carcinoma, but it has not been adequately investigated.”
- "Sulforaphane Potentiates the Efficacy of 17-Allylamino 17-Demethoxygeldanamycin Against Pancreatic Cancer Through Enhanced Abrogation of Hsp90 Chaperone Function." Nutr Cancer. 2011 Aug 29.

Li Y, Zhang T, Schwartz SJ, Sun D.; Department of Pharmaceutical Sciences, College of Pharmacy, University of Michigan, Ann Arbor, Michigan , USA.

"Sulforaphane destabilizes the androgen receptor in prostate cancer cells by inactivating histone deacetylase 6." Proc Natl Acad Sci U S A. 2009 Sep

29;106(39):16663-8. Epub 2009 Sep 15. Gibbs A, Schwartzman J, Deng V, Alunk Hematology and Oncology, Oregon Health and Science University, 3181 SW Sam Jackson OR 97239, USA.



# **TOO MUCH RESEARCH !**

## **Don't Fall Asleep On Your Sprouts**



# Peas vs. Pea Shoots





# Sunflower Sprouts vs. Greens





# Garlic or Onion Chives





# Alfalfa





# Radish & Broccoli



**Radish**



**Broccoli**



# BROCCOLI SPROUTS

- **“One in Three Cancer Deaths Are Diet Related”  
“8 of 10 cancers have a nutrition/diet component.”**
- - *National Cancer Institute*
- Broccoli sprouts: An exceptionally rich source of inducers of **enzymes that protect against chemical carcinogens**. Jed W. Fahey, Yuesheng Zhang, and Paul Talalay\* Johns Hopkins, 1997.
- Small quantities of **crucifer sprouts may protect against the risk of cancer** as effectively as much larger quantities of mature vegetables of the same variety.
- **"A major inducer of anti-carcinogenic protective enzymes from broccoli."** Proc. Natl. Acad. Sci. 1992.

# BLADDER CANCER

- *Broccoli Sprout Extracts Inhibit Bladder Cancer Cell Proliferation*
- Dept. of Food Science and Technology, The Ohio State Univ. 2005
- Cruciferous vegetable consumption is **associated with lower bladder cancer risk**. Glucosinolates are enzymatically converted to isothiocyanates during chopping, chewing, and digestion. Reduced cell proliferation in 3 human cell lines.
- *Inhibition of Urinary Bladder Carcinogenesis by Broccoli Sprouts.*
- “We report herein that dietary administration to rats of a freeze-dried aqueous **extract of broccoli sprouts significantly and dose-dependently inhibited bladder cancer development...**” “In conclusion, broccoli sprout extract is a highly promising substance for bladder cancer prevention.”
- Cancer Res. 2008 Feb 29. New Zealand and Roswell Park Cancer Institute, Buffalo, New York.
- ["Sulforaphane Inhibits 4-Aminobiphenyl-induced DNA Damage in Bladder Cells and Tissues."](#) Carcinogenesis. 2010 Sep 1. Ding Y, Paonessa JD, Randall KL, Argoti D, Chen L, Vouros P, Zhang Y. Department of Cancer Prevention and Control, Roswell Park Cancer Institute, Buffalo, New York, 14263, USA.
- [Broccoli sprout extracts inhibit bladder cancer cell proliferation](#) 2005 IFT Annual Meeting, July 15-20 - New Orleans, Louisiana Session 54G, Nutraceutical & Functional Foods: General II R. A. ROSSELOT<sup>1</sup>, S. K. Clinton<sup>2</sup>, S. J. Schwartz<sup>1</sup>, and Q. Tian<sup>3</sup>. (1) Dept. of Food Science and Technology, The Ohio State Univ., 2015 Fyffe Road, Columbus, OH 43210, (2) Dept. of Internal Medicine, Ohio State Univ., Division of Hematology and Oncology, 320 W. 10th Ave., A-437 Starling-Loving Hall, Columbus, OH 43210, (3) Dept. of Food Science & Technology, Ohio State Univ., 2015 Fyffe Ct., 110 Parker Food Science Bldg., Columbus, OH 43210-1007

# CARDIOVASCULAR

15 studies

- Dietary Approach to Attenuate Oxidative Stress, Hypertension, and Inflammation in the Cardiovascular System
- Rats fed dried broccoli sprouts. **Decreased oxidative stress; relaxed aorta; significantly lower blood pressure.**
- “We conclude that a diet containing phase 2 protein inducers also **reduces the risk of developing cardiovascular problems of hypertension and atherosclerosis.**”

College of Pharmacy and Nutrition, University of Saskatchewan, Saskatoon, SK. 2004.

# Broccoli Sprouts & Prostate Cancer

- Broccoli Sprouts and Prostate Cancer
- Three isothiocyanates in human prostate cancer PC-3 cells.
- Department of Pharmaceutics, Rutgers, New Jersey, 2005
- Isothiocyanates such as sulforaphane, are highly effectively in reducing the risk of cancer. **They possess antitumor activities in vitro and in vivo.**
- Documented reduced risk of getting prostate cancer for those who consume cruciferous vegetables. Sulforaphane and broccoli sprout extract potently induce quinone reductase activity in cultured prostate cells. **Sulforaphane induces phase 2 enzyme expression and activity significantly in human prostatic cells.**

Department of Urology, Stanford University Medical Center, Stanford, California. 2001.

**"Pharmacokinetics and pharmacodynamics of broccoli sprouts on the suppression of prostate cancer in transgenic adenocarcinoma of mouse prostate (TRAMP) mice:** implication of induction of Nrf2, HO-1 and apoptosis and the suppression of Akt-dependent kinase pathway." Pharm Res. 2009 Oct;26(10):2324-31. Keum YS, Khor TO, Lin W, Shen G, Kwon KH, Barve A, Li W, Kong AN.

**"Induction of cell cycle arrest in prostate cancer cells by the dietary compound isoliquiritigenin"** J Med Food. 2009 Feb;12(1):8-14, Lee YM, Lim do Y, Choi HJ, Jung JI, Chung WY, Park JH.

**ERK and JNK signaling pathways are involved in the regulation of activator protein 1 and cell death elicited by three isothiocyanates in human prostate cancer PC-3 cells. Carcinogenesis. 2005 Nov 4**

Xu C, Shen G, Yuan X, Kim JH, Gopalkrishnan A, Keum YS, Nair S, Kong AN. Department of Pharmaceutics, Ernest Mario School of Pharmacy, Rutgers, The State University of New Jersey, 160 Frelinghuysen Road, Piscataway, NJ 08854, US/



# High-Selenium Broccoli Sprouts

- Experimental High-Selenium Broccoli
- Earlier studies showed that laboratory rats fed high-selenium broccoli and broccoli sprouts **developed fewer precancerous lesions when exposed to known carcinogens than did rats given selenium. High-selenium broccoli sprouts protected the rats against precancerous lesions in the colon,** while high-selenium broccoli protected against mammary tumors.

USDA-ARS Grand Forks Human Nutrition Research Center,  
Grand Forks, North Dakota; 2002

# HEARTBURN. ULCERS

- Oral Broccoli Sprouts Eradicate Helicobacter Pylori Infection
- Broccoli sprouts may eradicate H pylori infection. The disappearance of H pylori stool antigen after broccoli sprout consumption **suggests that the sprouts may have antibacterial properties.**

The American Journal of Gastroenterology  
September 2003. William Beaumont Hospital, Royal Oak, MI.

# SKIN CANCER

10 studies

- Sulforaphane Mobilizes Cellular Defenses That Protect Skin Against Damage by UV Radiation.
- UV radiation is a carcinogen. Damages DNA, inflammation, generates oxidants, peroxidizes lipids. Increasing nonmelanoma skin cancers. **Broccoli sprout extract on both mouse and human skin reduced inflammation, edema, and erythema.**

Proc Natl Acad Sci U S A. 2007 Oct. by Talalay P, Fahey JW

# Sprouts During Pregnancy?

Eating broccoli sprouts during pregnancy may provide your kids with life-long protection against cardiovascular disease. The research team is trying to find ways to reduce oxidative stress using diet.

Using pregnant rats, the researchers found that not only did the broccoli **sprouts improve the mothers' health; they also seem to improve the health of their offspring into adulthood** - even if the babies never tasted a sprout.

"Phase 2 inducers promote the production of phase 2 proteins which either promote scavenging of oxidants or decrease the chance of these oxidants being formed in the first place."

Department of Anatomy and Cell Biology College of Medicine University of Saskatchewan, research team led by Bernhard Juurlink 2006. published in the journal of the Federation of American Societies for Experimental Biology (FASEB).





# Seed Quality is a Priority



# Seed is More Important than Soil

**Sprouting is Seed Intensive**





# Soil vs. No Soil

## Is it Worth it?



Buckwheat in Soil



Buckwheat in Water



# SOIL VS. NO-SOIL

## Wheatgrass Grown With and Without Soil

| <b>Mineral</b>  | <b>No Soil</b> | <b>Soil with Compost</b> |
|-----------------|----------------|--------------------------|
| Nitrogen (N)    | 5.92%          | 5.82%                    |
| Phosphorus (P)  | 0.65%          | 0.63%                    |
| Potassium (K)   | 1.03%          | 1.17%                    |
| Calcium (CA)    | 0.22%          | 0.30%                    |
| Magnesium (MG)  | 0.14%          | 0.17%                    |
| Zinc (ZN)       | 44 ppm         | 47 ppm                   |
| Copper (CU)     | 15 ppm         | 14 ppm                   |
| Manganese (MN)  | 23 ppm         | 24 ppm                   |
| Iron (FE)       | 87 ppm         | 108 ppm                  |
| Boron (B)       | 1 ppm          | 2 ppm                    |
| Molybdenum (MO) | 1 ppm          | 1 ppm                    |

Courtesy of Jonathan Sprouts, Inc. John Howell, University of Mass. Soil Lab

# Seed is More Important than Soil

## Wheatgrass Grown Same time. Same Method. Different Seed.



No Mold



White Mold



# Wheatgrass





# Wheatgrass - Juicer Required





# **The Chlorophyll Cocktail that Cures**

- **High Blood Pressure**
- **Diabetes**
- **Obesity**
- **Arthritis**
- **Ulcers**
- **Asthma**
- **Glaucoma**
- **Eczema**
- **Psoriasis**
- **Anemia**
- **Bad Breath**
- **Body Odor**
- **Constipation**
- **Hemorrhoids**
- **Diverticulitis**
- **Colitis**
- **Fatigue**
- **Female Problems**
- **Athlete's Foot**
- **Burns, Bruises**
- **Acne**
- **Gargle**
- **Gums, Gingivitis**
- **Eye Drops (Filtered)**
- **Skin Cancer**

# Why it Works

*The Chlorophyll Cocktail that Cures*

- **Rebuilds the blood**
- **Heals wounds**
- **Cleanses the colon**
- **Anti-bacterial**
- **Alkalinizes the blood**
- **Neutralizes toxins**
- **Purges the liver**
- **Stimulates enzyme activity**
- **Chelates out heavy metals**
- **Increases hemoglobin production**

# Hippocrates Health Institute





# Wheatgrass Anti-Cancer

## Sprouted Wheat - AntiMutagens

They found in the cell cytoplasm of the wheat sprouts at least two groups of heat-resistant compounds that showed anti-mutagenic activity. “**The strong inhibition of BP mutagenicity with non-chlorophyllic wheat sprout** extract suggests that chlorophyll is not the main compound responsible for the anti-mutagenic activity.” They deduced that the antimutagenic compounds in wheat sprout extract must belong to its group of flavonoids.

Mechanism of antimutagenicity of wheat sprout extracts. Peryt B, Szymczyk T, Lesca P. Mutat Res. 1992 Oct;269(2):201-15. Dept of Biochemistry, Medical Academy, Warsaw, Poland.

## Inhibition of Carcinogens

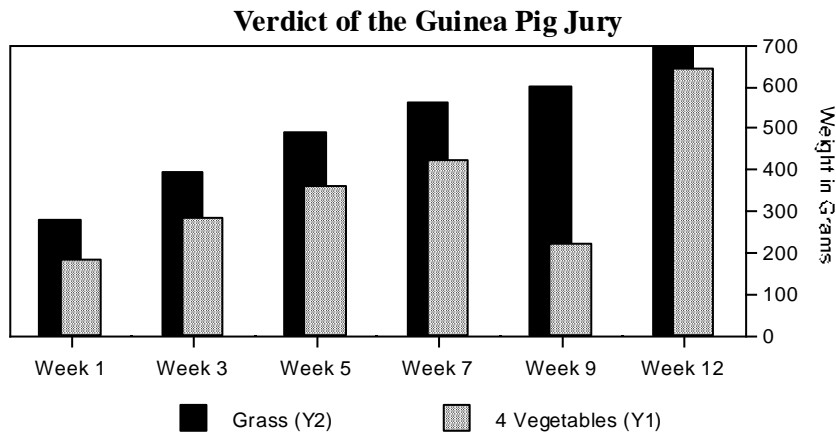
Commercially available wheat berries grew hydroponically for 7–14 days into 5” tall wheat grass. Wheatgrass juice was extracted and tested against known carcinogens. Extracts from carrots and parsley also exhibited inhibitory activities but not as potent as those of wheat. Un-sprouted wheat berries soaked overnight did not demonstrate any inhibitory activities.

“First, the **inhibition of potent carcinogens is quite strong at a reasonably low level of extract. Second, the wheat sprout extract is nontoxic even at high levels** while most known inhibitors are toxic at medium to high levels.”

Inhibition of In Vitro Metabolic Activation of Carcinogens by Wheat Sprout Extracts. By Chiu-Nan Lai, B. Dabney, C. Shaw, Dept. of Biology, Univ. of Texas System Cancer Center. M.D. Anderson Hospital and Tumor Institute, Houston, TX. Nutrition and Cancer. Vol.1, no. 1. P.27-30. Fall, 1978

# Growth Hormone Stimulation

## Early Studies on Wheatgrass 1936-1951



To save their lives, dehydrated cereal grass was added to their diets (eleventh week) and in less than a week, the trend was reversed and a consistent and rapid growth took place. The experiments prove conclusively that while other foods are good, the grasses alone are the complete food and contain all the elements needed to support life. —V.E. Irons.

Animals don't know anything about vitamins. They determine the nutritive value with their instinct, palate and olfactory faculties acting for them in place of judgement.

—George Sinclair, 1869.

## 1994 - Growth Hormone Found

Barley grass leaf extract was added to human white blood cells and pituitary cells. **The grass extract stimulated immune functions and the release of growth hormones and prolactin.** (related to general and reproductive health) This study successfully isolated and identified the molecule in barley grass responsible for this enhancement. It is a water soluble form of vitamin E called a-tocopherol succinate. According to Dr. Allan Goldstein co-author of the study, *"we now know that vitamin E plays an important metabolic role in maintaining the integrity of membranes and may reduce the risk of heart disease and lower the incidence of several types of cancer in humans, including breast and colon."*

Isolation of a Vitamin E Analog from a Green Barley Leaf Extract That Stimulates Release of Prolactin and Growth Hormone from Rat Anterior Pituitary Cells in Vitro. By M. Badamchian, B. Spangelo, Y. Bao, Y. Hagiwara, H. Hagiwara, H. Ueyama, A. Goldstein. Journal Nutrition & Biochemistry. Vol. 5: 145-150. 1994.

A-tocopherol Succinate but Not a-tocopherol or Other Vitamin E Analogs Stimulates Prolactin Release from Rat Anterior Pituitary Cells in Vitro. By same authors (except Bao). Journal Nutrition and Biochemistry. Vol. 6: 340-344. 1995.

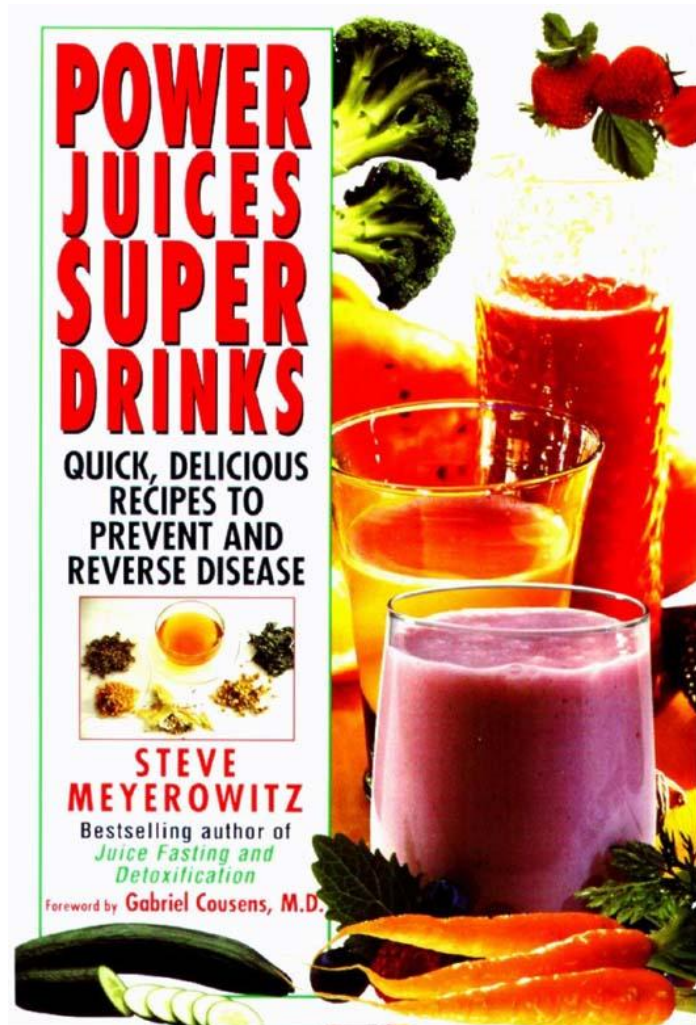
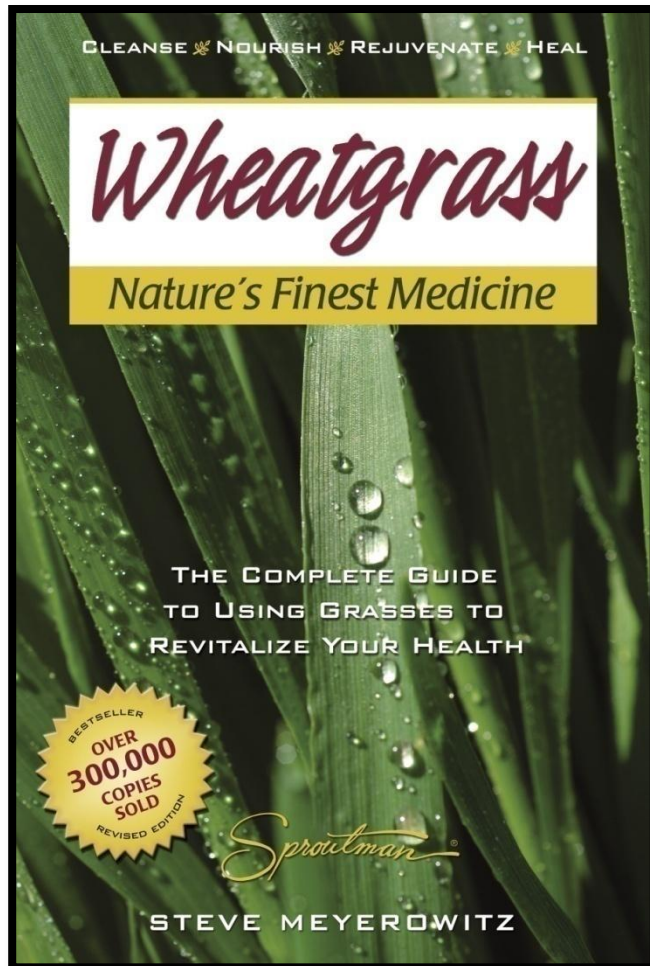
# No Chlorophyll. Still Effective



Wheatgrass Products for your Skin



# A Good Book Helps



# Soil vs. Non-Soil





# Advantages of Soil-Free Wheatgrass





# You too can Heal with Living Foods



**Psoriasis is a chronic, autoimmune disease** that appears on the skin. Psoriasis can occur on any part of the body and is associated with other serious health conditions, such as diabetes, heart disease and depression.

As many as 7.5 million Americans have psoriasis. Topical **steroid medications** and systemic medications are the most frequently used treatment for psoriasis. It is essential to use topical steroids properly to avoid unnecessary **side effects**. While complementary and **alternative treatments** are becoming more common, they have **not been tested** and studied to the same extent as conventional medical treatments.

## *American Academy of Dermatology*

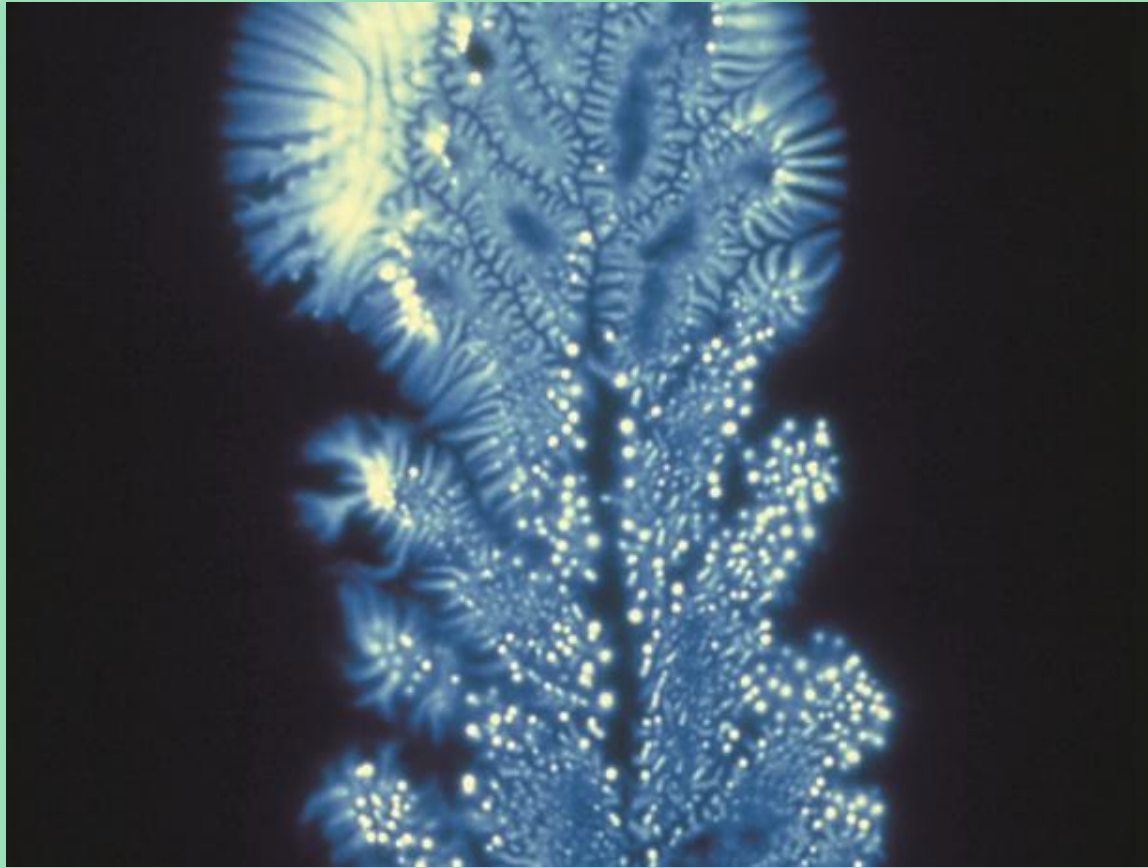
**Psoriasis is a chronic, meaning lifelong, condition because there is currently no cure.** People often experience flares and remissions throughout their life. Controlling the signs and symptoms typically requires lifelong therapy.

More than **4.5 million adults** in the United States have been diagnosed with psoriasis, and approximately 150,000 new cases are diagnosed each year. An estimated 20% have moderate to severe psoriasis.

While scientists still **do not fully know what causes psoriasis**, research has significantly advanced our understanding. Researchers have identified genes that cause psoriasis. These genes determine how a person's immune system reacts. These **genes can cause psoriasis or another immune-mediated condition**, such as rheumatoid arthritis or type 1 diabetes.

# My Battle Against Psoriasis





**Kirlean Photo of a SINGLE Blade of Grass**  
**Healing is Life Force, no Nutrients**

**\* LIFE FORCE \***



# ENERGY!



Illustrations by Michael Jon Parman

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# Good for the Whole Family





# Dogs Have to Eat Too!



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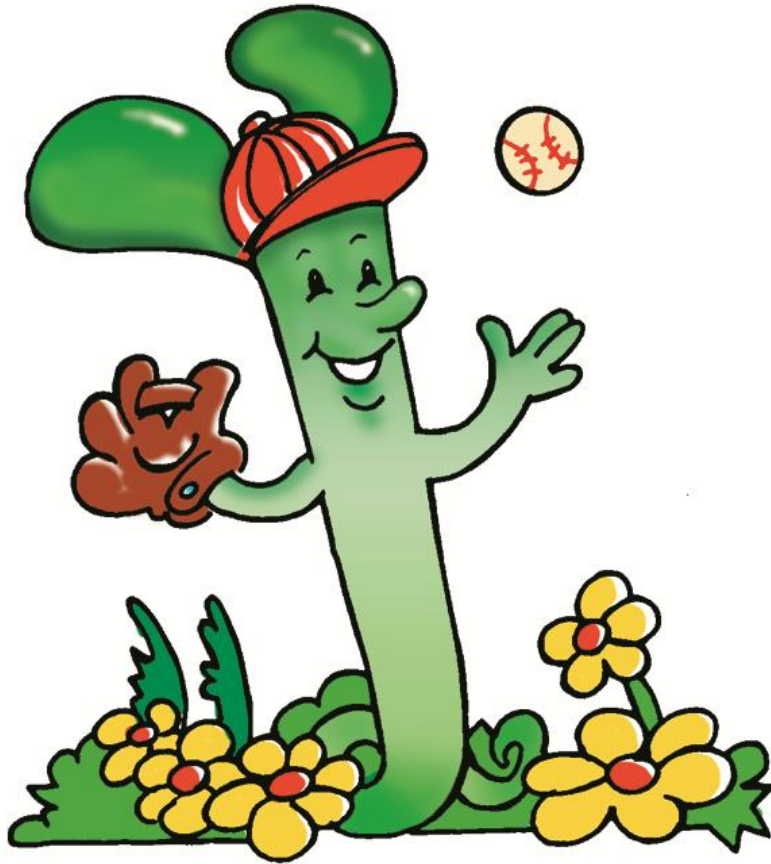


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Sproutman with Dr. Ann Wigmore circa 1979

# We Can Get Healthy Together



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