

from the desk of Ralph E. Carson, PhD, RD, LD



## PHYTONUTRIENTS AND NATURAL COMPOUNDS

### FOR PROMOTING WELLNESS

Natural Anti-inflammatory Support  
for Safety and Effectiveness  
Dr. Ralph Carson

### CHRONIC (Persistent) INFLAMMATION

Chronic inflammation is a **major factor in debilitating disease** in developed countries. Persistent inflammation is frequently linked with cardiovascular disease; cancer; diabetes; Alzheimer's disease; aging; autoimmune diseases (asthma, lupus, MS); arthritis; etc. <sup>(1,2)</sup>.

The popular arthritic treatments, **COX-2 inhibitors** Vioxx, Celebrex, Bextra, and NSAID's (naprosyn) Advil have been alleged to cause increased risk of heart attack and stroke and have been under FDA review<sup>(3,4, 5,6,7,8,9,10,11,12)</sup>.

**NSAID side effects of intestinal bleeding and kidney toxicity cause hospitalization of around 100,000 annually; some 20,000 of these die<sup>(13)</sup>.**

The number of arthritis sufferers is on the rise. In 1997, 47 million Americans were diagnosed and treated for joint disease. The anticipation was that by 2010 this number would rise to over 70 million. By the year 2003 that number had **already reached 70 million** at a medical cost of \$65 billion. The number of arthritic sufferers worldwide claims to be over 400 million <sup>(14)</sup>.

### CELADRIN® AND GLUCOSAMINE

Safe, Natural, Effective Alternatives

**Celadrin®** is a proprietary blend of the necessary essential fatty acids shown to help improve function and reduce pain for people struggling

with aches and discomforts resulting from arthritis.

**Celadrin®** balances fats that contribute to pro-inflammatory responses with fats that are associated with anti-inflammatory agents<sup>(15)</sup>. It also inhibits destructive enzymes that cause inflammation<sup>(16)</sup>. The "wear and tear" seen in osteoarthritis is actually due to excess action of proteolytic enzymes that break down tissue <sup>(15,16)</sup>.

Celadrin®, made with a proprietary process of esterifying oils, is an all natural ingredient scientifically reported to **reduce inflammation and pain with no side effects**. Published twice in the internationally acclaimed **Journal of Rheumatology**, Celadrin® provides youthful cell fluidity and elasticity, facilitates cushioning of bones and joints and **provides cumulative and restorative benefit** <sup>(17,18)</sup>.

**Glucosamine** is made in the body and is also commercially available as a natural ingredient extracted from a carbohydrate in crustacean shells. Regular use helps maintain lubricating fluid in joints, promotes flexibility, range of motion and comfortable joint function and provides a **natural building block of healthy cartilage** <sup>(19,20,21,22,23)</sup>.

### PHYTONUTRIENTS

Phytonutrients are biologically active constituents heavily concentrated **in the skins of botanicals** and are responsible for their color, flavor and

scent. They are powerful anti-oxidants, but their value extends much **beyond free radical protection** <sup>(24)</sup>.

There are dozens of catalogued phytonutrients (including anthocyanins, proanthocyanadins, carotenes, zeaxanthine, isoflavones, quercetin, bioflavonoids, beta-sitosterols) and **hundreds more yet to be identified and catalogued** <sup>(25,26,27)</sup>.

These compounds have been reported in some studies to protect man from cancer, heart disease, diabetes, aging, Alzheimer's, cataracts, macular degeneration, arthritis and more <sup>(25,26,27,28,29)</sup>. **Maximum health benefits are derived from consuming a variety of botanicals with a full spectrum of colors/pigments** <sup>(30,31)</sup>.

## DIET EXCESSES AND DEFICIENCIES

Personal health/illness is **irrefutably** linked to diet. **Excesses and deficiencies are rampant in America as well as other industrialized nations** <sup>(32)</sup>. Fresh fruits and vegetables are routinely replaced by nutrient-poor foodstuffs <sup>(28,33)</sup>.

Diets are particularly deficient in FRUITS, especially the lesser known ones, richly pigmented and laden with phytonutrients <sup>(26,31)</sup>. It is estimated that fewer than 17% of Americans have adequate fruit intake. The USDA recently increased its recommended fruit intake from 2-4 to 3-5 fruits daily <sup>(34,35)</sup>.

## ACAI (ah-sigh-ee) BERRY AMAZON SUPERFRUIT

**In late 2004, Dr. Nicholas Perricone appeared on Oprah to promote his book "The Perricone Promise: Look Younger-Live Longer in Three Easy Steps" in which he lists the Ten Super Foods to Rejuvenate the Body.**

**He rated the Acai Berry as #1, calling it one of the most nutritious and powerful foods in the world.** This deep purple, grape-sized, nutrient-dense berry grows at the top of towering palm trees in the Amazon Rainforest of Brazil. It boasts the protein profile of an egg; a fatty acid ratio similar to olive oil and has more than 30 times the antioxidant power of red wine <sup>(36,37)</sup>.

For centuries, Brazil's endogenous people have used the phytonutrient-rich Acai Berry as medicine for many conditions, including as an aphrodisiac for ancient warriors <sup>(36,37,38)</sup>.

**In 2004, NBC Today's Matt Lauer hosted an Amazon Rainforest road show from Brazil, reporting that locals now call the legendary Acai Berry the "Viagra of the Amazon."**

Articles about the popularity of the Acai Berry appearing in the popular press include: **The Times**, UK, 9/20/03; **Wall Street Journal**, 4/18/03; **The Washington Post**, 8/11/02; **Vogue**, 6/03.

## SYNERGISTIC PHYTOBLEND OF 19 NUTRIENT-BALANCED FRUITS

In early 2005, a team of researchers and doctors released a unique formula under the brand name of **MonaVie™**. It merged the Acai Berry's diverse nutrient range with **18 other fruits chosen from a broad color spectrum**<sup>(31)</sup> and containing catalogued, complementary phytonutrients and anti-inflammatory components <sup>(31,40)</sup>. One well received version of the formula includes **glucosamine and Celadrin®** for added anti-inflammatory support.

These endogenous fruits are harvested from exotic rainforests and pristine valleys. They represent flora of the four corners of the world: South America, Asia, the Mediterranean and North America.

The stated formula goal was to achieve nutrient **balance** (variety and moderation), convenience, good taste and reasonable cost.

MonaVie's blend includes: **Acai Berry**, White Grape, Pear, Acerola, Purple Grape, Aronia, Cranberry, Passionfruit, Kiwi, Lychee, Apricot, Prune, Blueberry, Bilberry, Pomegranate, Camu Berry, Wolfberry, Banana, Lychee.

Each fruit was chosen because of its historical use for specific health benefits and unique phytonutrient composition that has now been **validated by modern science**—empirical evidence, supported by research.

The catalogued **phytonutrients** of these selected fruits have been reported to be useful

**in preventing or responding to eye problems, cancers, sexual dysfunction, immune problems, circulatory conditions, strokes, energy deficiencies, diabetes, inflammations, arthritis, intestinal problems, memory loss, urinary tract infections, DNA damage, insomnia, asthma, anxiety, among others** <sup>(17,25,27,29,41)</sup>.

Related studies show an association between **fruit intake** and decreased risk of **cardiovascular disease** <sup>(42)</sup>. Several case-control studies indicate that intakes of selected **fruits** are associated with lower incidence of some **cancers** <sup>(43)</sup>. Increased intake of **fruits** has also been associated with decreased **blood pressure** <sup>(44)</sup>.

## REFERENCES

- (1) Chilton FH. **Inflammation Nation**. Simon & Schuster. New York (2005)
- (2) Yeh ET. CRP as a mediator of disease. **Circulation** (2004) 109: 1111-1114.
- (3) **USA Today**. 10/4/04. Vioxx withdraws 9/30/04;
- (4) **USA Today**. Bextra study similar to Vioxx 11/11/04.
- (5) **Medline Plus**. How Cox Drugs Cause Heart Disease. Garret Fitzgerald, Univ. PA, Science. Friday, November 19, 2004. Reuters. Thursday, November 18, 2004
- (6) **USA Today**. Use of Non-Steroidal Anti-Inflammatory Drugs Suspended in Large Alzheimer's Disease Prevention Trial. Dec. 2, 2004
- (7) **USA Today**. NIH Halts Use of COX-2 Inhibitor in Large Cancer Prevention Trial, Dec. 2004; Elias A Zerhouni, NIH Director
- (8) **USA Today**. Doctors Say Avoid Pfizer's Bextra- Medical Journal. NEJM, Dec. 23, 2004
- (9) **USA Today**. Aleve is latest pain reliever facing questions. 12/20/04
- (10) **USA Today**. COX-2 Inhibitors overprescribed. January 24, 2005. Archives of Internal Medicine.
- (11) **USA Today**. More evidence links Celebrex to heart problems. January 24, 2005
- (12) **USA Today**. Painkillers Hang in the Balance: Heart risk causes FDA to scrutinize COX-2 inhibitors 2/9/05.
- (13) Vane JR & Botting RM. Anti-inflammatory drugs and their mechanism of action. **Inflamm Res** (1998) 47: S78-87.
- (14) Arthritis Foundation (2001).
- (15) Jump DB. The biochemistry of n-3 polyunsaturated fatty acids. **J Biol Chem** (2002) 277: 8755-8758.
- (16) Kelly DS. Modulation of human immune and inflammatory responses by dietary fatty acids. **Nutrition** (2001) 17:669-673.
- (17) Kraemer WJ, Ratamess NA, Anderson JA, Maresh CM, Tiberio DP, Joyce ME, Messinger BNB, Grench KN, Sharman MJ, Rubin MR, Gomez AL, Vokek JS, and Hesslink, RL. The effects of a cetylated fatty acid topical cream on functional mobility and quality of life of patients with osteoarthritis. **J. Rheumatology** (2003) 31: 767
- (18) Hesslink RL, Armstrong DA, Nagendran MV, Sreevatsan S, and Barathur R. Cetylated fatty acids improve knee function in patients with osteoarthritis. **J Rheumatology**, (2002) 29: 1708-712.
- (19) Christgau S et al. Osteoarthritic patients with high cartilage turnover show increased responsiveness to the cartilage

- protecting effects of glucosamine sulfate. **Clin Exp Rheumatol** (2004) 22:36-42.
- [20] McAlindon T. Glucosamine for osteoarthritis: dawn of a new era? **Lancet** (2001) 357:247-8.
- [21] Pavelka K, Gatterova J, Olfarova M, et al. Glucosamine Sulfate Use and delay in progression of knee osteoarthritis in a long-term randomized, placebo-controlled, independent, confirmatory trial. **Archives of Internal Medicine** (2002) 43 (Suppl) 1908.
- [22] Reginster JY et al. Glucosamine sulfate significantly reduces progression of knee osteoarthritis over 3 years: a large, randomized, placebo-controlled, double-blind, prospective trial. **Arthritis Rheum** (1999) 42 (Suppl.): 1975.
- [23] Reginster JY, Deroisy R, Rovanti LC, et al. Long-term effects of Glucosamine Sulfate on Osteoarthritis progression: a randomized, placebo-controlled clinical trial. **Lancet** (2001) 357:251-256. (63rd Annual Scientific Meeting of the American College of Rheumatology, November, 1999)
- [24] Wattenburg LW. Inhibition of carcinogenesis by minor dietary constituents. **Cancer Res** (1992) 52:2085S.
- [25] Hassler C. Nutritional implications of Dietary Phytochemicals-ADA meeting 1995.
- [26] Lampe JW. Health effects of vegetables and fruit: assessing mechanisms of action in human studies. **Am J Clin Nutr** (1999) 70:475S-490S.
- [27] Messina M, Kunkel E, Hassler C, and Zava D. Nutritional implications of dietary phytochemicals-ADA meeting 1995
- [28] **Agricultural Research**. "Can foods forestall aging?" Feb 1999.
- [29] Clydesdale FM. A proposal for the establishment of scientific criteria for health claims for functional foods. **Nutr Rev** (1997) 55:413.
- [30] **Prevention**, April 2003.
- [31] McBride J. Plant Pigments paint a rainbow of antioxidants. **Agricultural Research** (11/1/1996).
- [32] Johnson RK & Kennedy E. The 2000 Dietary Guidelines for Americans: What are the changes and why were they made? **J Am Diet Assoc** (2000) 100:729.
- [33] Healthy Eating Index, **J. Agricult**. 1995
- [34] Krieb-Smith SM et al. US adults' fruit and vegetable intake, 1989 to 1991: a revised baseline to the Healthy People 2000 objective. **Am J Public Health** (1995) 85: 1623.
- [35] Dietary Guidelines for Americans, 2005. [www.healthierus.gov/dietaryguidelines](http://www.healthierus.gov/dietaryguidelines)
- [36] Rogez, H et al. Biochemical and Technical Studies on Acai. Centro Tecnológico, Diaouiweir ria I niinin, Belgica.
- [37] Rogez H. Acai: Composition and Improvements in Preservation. **Belem**: EDUFPA; 2000.
- [38] Pegel K. The importance of sitosterol and sitosterolin in human and animal nutrition. **S African J Science**. (1997) 93:263-68
- [39] Hong W, Cao G, and Prior P. Oxygen Radical Absorbance Capacity of Anthocyanins. **J Agric. Food Chem** (1997) 45: 304-9.
- [40] **Environmental Nutrition**, Jan. 2003
- [41] Steinmetz KA. Vegetables, fruit and cancer prevention: A review. **J Am Diet Assoc** (1996) 96:1027-30.
- [42] Rimm EB et al. Vegetable, fruit, and cereal fiber intake and risk of coronary heart disease among men. **JAMA** (1996) 275: 447.
- [43] **Harvard Health Letter**, April 1995.
- [44] Appel LJ et al. A clinical trial of the effects of dietary patterns on blood pressure. DASH Collaborative Research Group. **N Engl J Med** (1997) 336:1117.