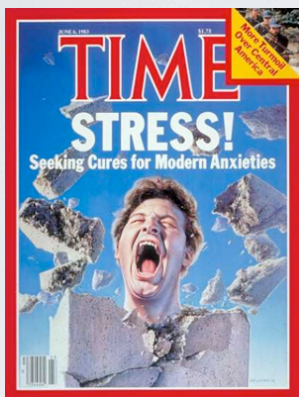
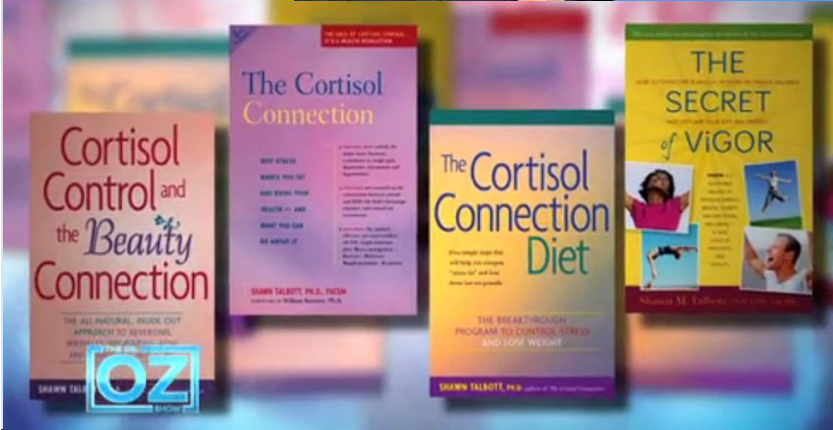




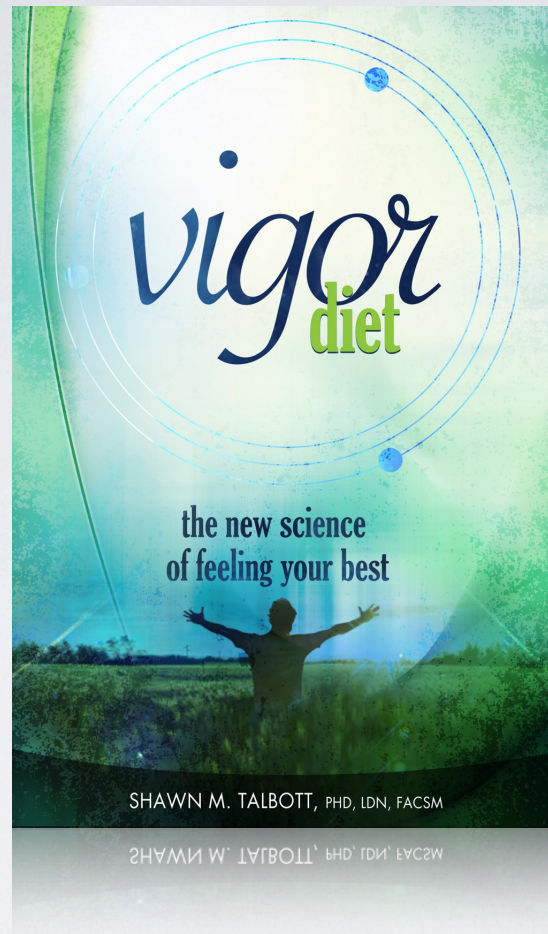
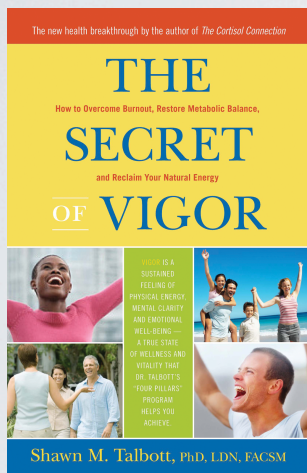
Shawn Talbott, PhD  
FACSM, FACN, FAIS, CNS, LDN  
Chief Science Officer











More<sup>®</sup>  
PROJECT



# COMMITMENT TO RESEARCH

= proven value



MILLIONS OF DOLLARS SPENT  
ON SCIENTIFIC STUDIES

~80+ funded studies

~18 published

- USDA
- National Institutes of Health

# Research Partners

- USDA - Agricultural Research Services
- US National Institutes of Health (NIH),  
National Institute on Aging
- University of Arkansas School for Medical Sciences
- University of California School of Medicine, Irvine, CA
- National University of Singapore
- Holger NIS Labs, Calgary, Alberta, Canada
- Flora Research Labs, Grants Pass, OR
- University of Wisconsin - Madison
- Ohio State University Comprehensive Cancer Center
- AIBMR Life Sciences,  
Natural and Medicinal Products Research
- Ohio State University School Medicine
- Indiana University School of Medicine
- University of Minnesota
- Wayne State University
- NIS Labs, Klamath Falls, OR
- Brunswick Laboratories, Norton, MA
- New York University
- Cleveland Clinic Foundation
- Laboratory Experimental Gerontology







# Experimental Biology

## 2012

- **Session: Obesity and Metabolic Syndrome**
  - Effects of brown seaweed & licorice on blood glucose & weight loss in overweight subjects
- **Session: Biochemistry of Vitamins and Minerals**
  - Improvement in skin carotenoid levels assessed by reflectance spectroscopy
- **Session: Energy and Nutrient Metabolism**
  - Effects of MonaVie RVL weight loss program on body composition and blood lipids
- **Session: Metabolic and Disease Processes**
  - Acai juice with beta-glucan reduces URTI symptoms and improves mood state in stressed subjects

## 2013

- **Session: Metabolic and Disease Processes**
  - Effect of Magnolia/Phellodendron on Cortisol and Mood State in Moderately Stressed Subjects
- **Session: Obesity and Metabolic Syndrome**
  - Effect of Eurycoma longifolia on Stress Hormones & Psychological Mood State in Stressed Subjects
- **Session: Biochemistry of Vitamins and Minerals**
  - Study: Method for Improved Thermal & Chemical Stability of Carotenoids in MonaVie Juice Products





# More fruits and vegetables?





◆ A major reason is due to compounds called flavonoids.

There are over **6,000** flavonoids in plant foods.

Certain flavonoids exhibit health benefits for heart, brain, skin, and cells throughout the entire body.



# Açaí Palm Trees





# THE AMAZON





Water rises from 7.5 to 15 meters in  
Flood Plains of the Amazon Delta  
twice each day during the dry season

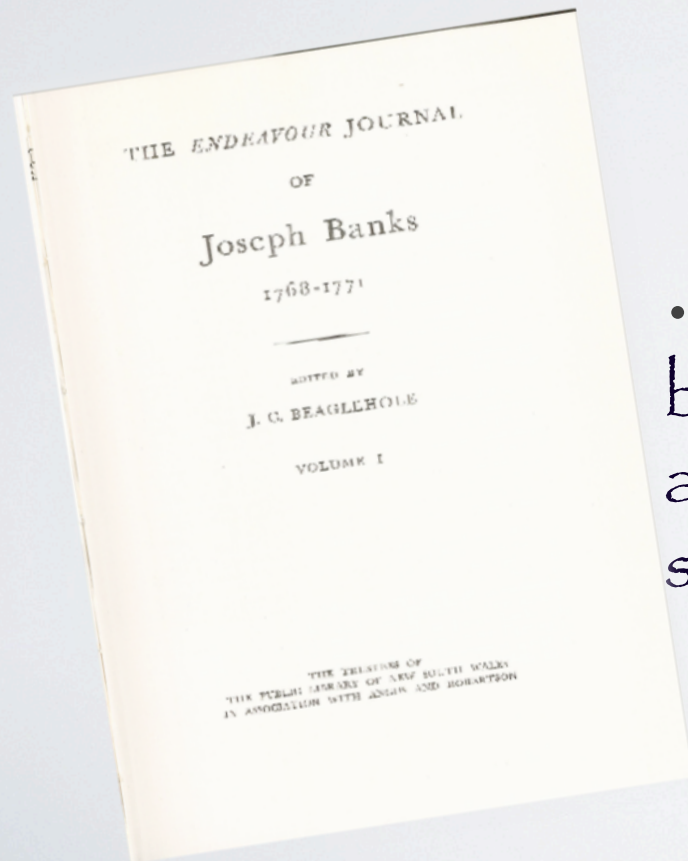
water  
level

---





The earliest consumption documented of açai fruit in the Amazon was reported in 1768 in the diary of Joseph Banks.



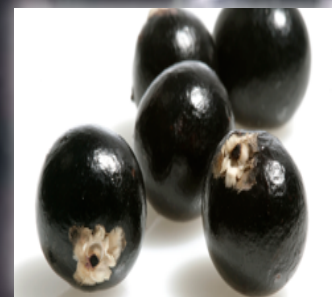
- “Palm berries appear much like black grapes but for having scarce any pulp covering a very large stone.” (p.201)



Consumption of Açai  
Pulp as a Food in the  
Amazon Painted by  
Portuguese Botanist  
~1791.



# Açaí Palm





# Açaí has over 3,000 Phyto-nutrients

Beta-sitosterol	Epi-catechin	Kaempferol	Taxifolin
Campesterol	Eriodictyol	Luteolin	Vanillic acid
Catechin	Eriodictyol-7-	Luteolin-4-	
Chrysoeriol	glucoside	glucoside	
Coumeric acid	Eurpatorin	Myricetin	
Cyanidin-3-	Ferulic acid	Orientin	
glucoside	Flavanols	Proanthocyanin	
Cyanidin-3-	(numerous)	Protocatchuric	
glucoside-	Flavonols	acid	+
coumaraterutinosi	(numerous)	Protocatechic acid	
de	Gallic acid	Quercitin-3-	
Cyanidin-3-O-	Homoorietin	arabinoside	
rutinoside	Isoquercitin	Resveratrol	
Deoxyhexose	Isovitexin	Sigmasterol	
+	+	+	



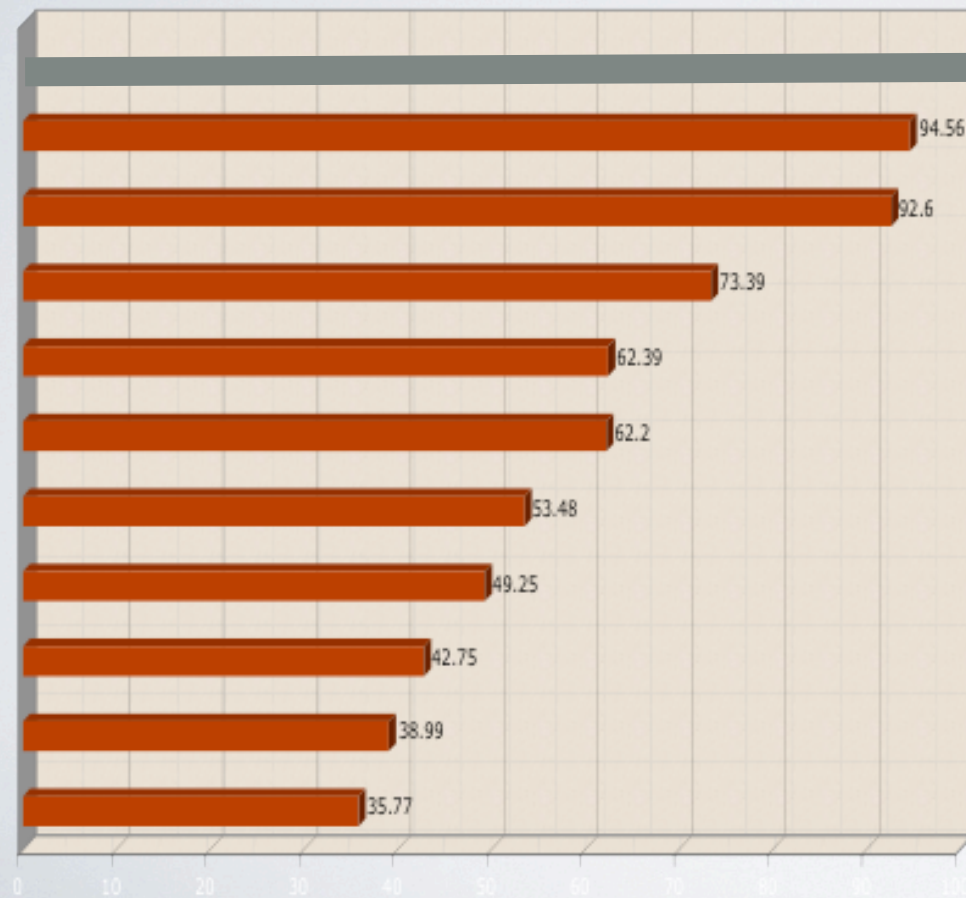
# Preparing Açai Pulp

- Vacuum freeze-drying removes 99% of the water
- Preserves:
  - phytochemicals
  - enzymatic activity
  - nutritional value
  - antioxidant activity
- Maintains bioactivity
- Extends taste & color
- Increases shelf-life



# Açaí ORAC Score

Total Antioxidant Capacity



Acai 1027



# E<sup>mv</sup> & E<sup>mv</sup>lite



Longer-lasting Sustained Energy  
+ 40 million cans sold



**E<sup>mv</sup>**

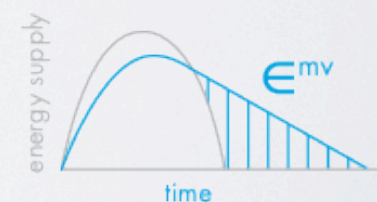
HOW CHARGED IS YOUR ENERGY?

MONA·VIE

	Juice Percentage	Palatinose™ for Lasting Energy	Contains Açai, Acerola, Cupuacu, & Camu Camu	200% DV of four essential B vitamins	D-Ribose (2.50 mg)	Cha de Burge	Maca	Yerba Mate	Ltyrosine	Green tea	No Preservatives	No more than 80 mg of caffeine	No Added Refined Sugars	D-Ribose	No Artificial Sweeteners	Guarana	Panax Ginseng	No Artificial Colors	No Artificial Flavors
MonaVie E <sup>mv</sup>	80	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Red Bull	0										✓	✓			✓				
Full Throttle Citrus	0													✓	✓				
Amp Original	X*														✓	✓	✓		✓
Quixtar XS Gold: E+	X*												✓				✓	✓	✓
TNI HIRO Energy	X*											✓	✓	✓		✓		✓	✓
Usana Rev3	X*									✓				✓	✓		✓	✓	✓
Rockstar Juiced	50																✓	✓	✓
Monster M-80	80														✓		✓	✓	✓

	Caffeine per can [mg]	Sugar sources	Artificial sweeteners
MV Energy	80 (from natural sources)	Fruit, palatinose	None
Red Bull	76 Synthetic	Sucrose, glucose	None
Monster M-80	160	Fruit, glucose	Sucralose
Rockstar Juiced	160	Fruit, sucrose	Sucralose, Acesulfame potassium
Full Throttle	144	High fructose corn syrup and/or sucrose	None
Amp Overdrive	160	High fructose corn syrup	None
TNI HIRO Energy	73	Fruit	Sucralose, Acesulfame potassium
Usana Rev3	120	Fructose, cane juice syrup	None
Quixtar XS Gold	83	None	Sucralose, Acesulfame potassium

\*Percentage of juice not listed



Provides longer lasting energy.\*

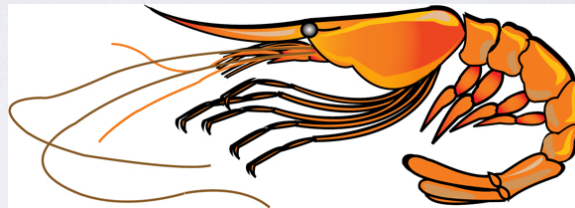


# 2012 Experimental Biology



Glucosamine Hydrochloride helps to stimulate “Autophagy” – cellular turnover process (regeneration/rejuvenation)

# active



Today 98% of all  
Glucosamine is made  
almost exclusively from  
shellfish



active



MonaVie uses a Patented, vegetable-derived Glucosamine Hydrochloride

Generally Recognized As Safe (GRAS),  
Kosher certified  
OK for vegetarians

# active



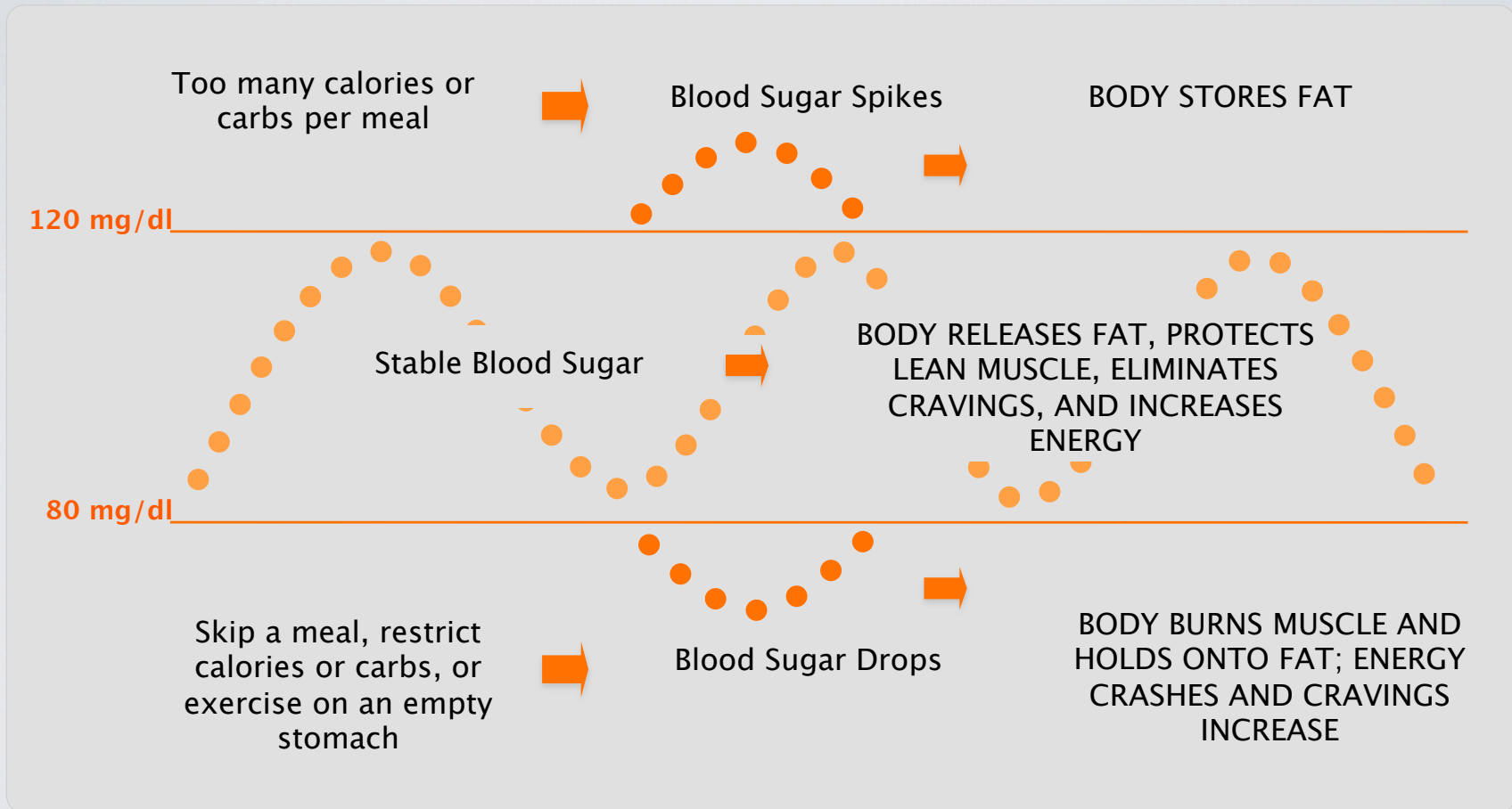
← 2007 2012 →

Monavie has always been ONE  
step ahead





# Blood Sugar balance





# Blood Sugar balance



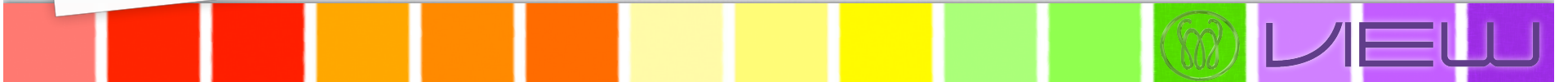
- 1) Fat Is Released into the Bloodstream    2) Muscle Absorbs Fat    3) Fat Is Burned as Energy

## FAT FACT:

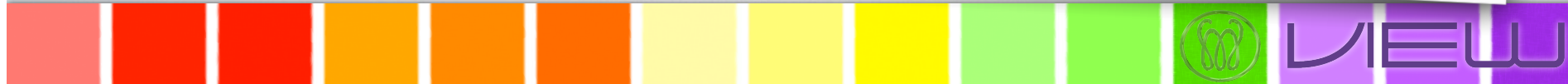
Every Pound of Fat Stores 3,500 Calories

## MUSCLE FACT:

Fat Is Primarily Burned in Muscle  
**More Muscle = Faster Metabolism**









Prove the value of MonaVie products with the science of **VIEW**







# VIEW

## MONAVIE ANTIOXIDANT SCANNER



US 20100179435A1

(19) **United States**

(12) **Patent Application Publication**  
Sharifzadeh et al.

(10) **Pub. No.:** US 2010/0179435 A1  
(43) **Pub. Date:** Jul. 15, 2010

(54) **NONINVASIVE MEASUREMENT OF FLAVONOID COMPOUNDS IN BIOLOGICAL TISSUE**

(52) **U.S. Cl.:** ..... 600/476

(57) **ABSTRACT**

(76) **Inventors:** **Mohsen Sharifzadeh**, Salt Lake City, UT (US); **Igor V. Ermakov**, Salt Lake City, UT (US); **Werner Gellermann**, Salt Lake City, UT (US)

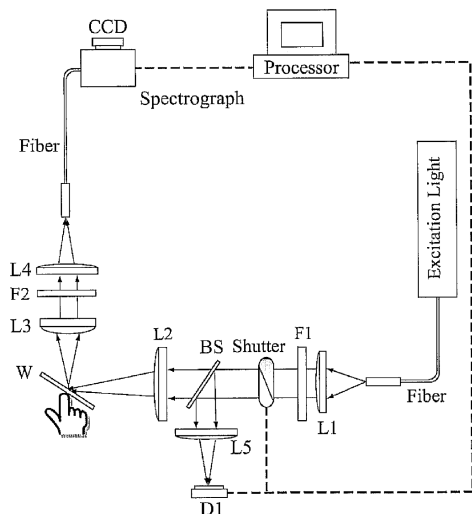
Correspondence Address:  
**GIFFORD, KRASS, SPRINKLE, ANDERSON & CITKOWSKI, P.C.**  
PO BOX 7021  
TROY, MI 48007-7021 (US)

(21) **Appl. No.:** 12/352,702  
(22) **Filed:** Jan. 13, 2009

**Publication Classification**

(51) **Int. Cl.**  
**A61B 6/00** (2006.01)

Methods and apparatus are disclosed which facilitate the rapid, noninvasive and quantitative measurement of the concentration of flavonoid compounds, as well as their isomers and metabolites, in biological tissue such as human skin. Low-intensity, visible-light illumination of intact tissue provides for high spatial resolution, and allows for precise quantification of the flavonoid levels in the tissue. The preferred embodiments make use of a previously unknown, low-oscillator strength, optical absorption transition of flavonoids. This makes it possible to optically excite flavonoids in living human tissue outside the absorption range of other, potentially confounding skin chromophores. A system constructed in accordance with the invention includes a source of light for illuminating a localized region of tissue with light that overlaps the absorption bands of a flavonoid compound; a device for detecting the fluorescence emitted by the flavonoid compound resulting from the illumination; and a processor for determining the concentration level of the flavonoid compound based upon the detected fluorescence.



US 20090306521A1

(19) **United States**

(12) **Patent Application Publication**  
Ermakov et al.

(10) **Pub. No.:** US 2009/0306521 A1  
(43) **Pub. Date:** Dec. 10, 2009

(54) **NONINVASIVE MEASUREMENT OF CAROTENOIDS IN BIOLOGICAL TISSUE**

(52) **U.S. Cl.:** ..... 600/477; 600/587

(75) **Inventors:** **Igor V. Ermakov**, Salt Lake City, UT (US); **Werner Gellermann**, Salt Lake City, UT (US)

(57) **ABSTRACT**

Correspondence Address:  
**GIFFORD, KRASS, SPRINKLE, ANDERSON & CITKOWSKI, P.C.**  
PO BOX 7021  
TROY, MI 48007-7021 (US)

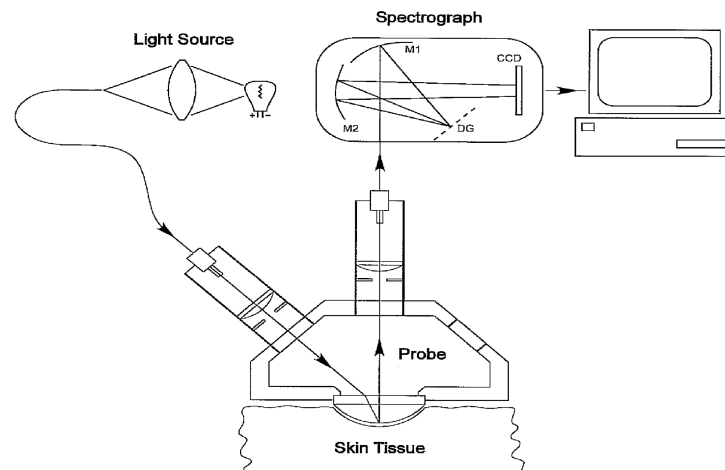
(73) **Assignee:** **Longevity Link, Inc.**, Salt Lake City, UT (US)

(21) **Appl. No.:** 12/134,667  
(22) **Filed:** Jun. 6, 2008

**Publication Classification**

(51) **Int. Cl.**  
**A61B 6/00** (2006.01)  
**A61B 5/103** (2006.01)

A method and apparatus are provided for the determination of carotenoid antioxidants and similar chemical compounds in biological tissue such as living skin. The method and apparatus provide a noninvasive, rapid, accurate, and safe determination of carotenoid levels which in turn can provide diagnostic information of the antioxidant status of tissue. Reflection spectroscopy is used to measure the concentrations of carotenoids and similar substances in tissue. White light is directed upon the area of tissue that is of interest. A small fraction of diffusively scattered light is collected and measured. The tissue is pressured to temporarily squeeze blood out of the measured tissue volume while the reflection spectrum is continuously monitored, displayed, and analyzed in near real time. After an optimal time period of typically 15 seconds, the influence of the dominating hemoglobin and oxyhemoglobin tissue absorptions on the reflection spectra are minimized.



# VIEW

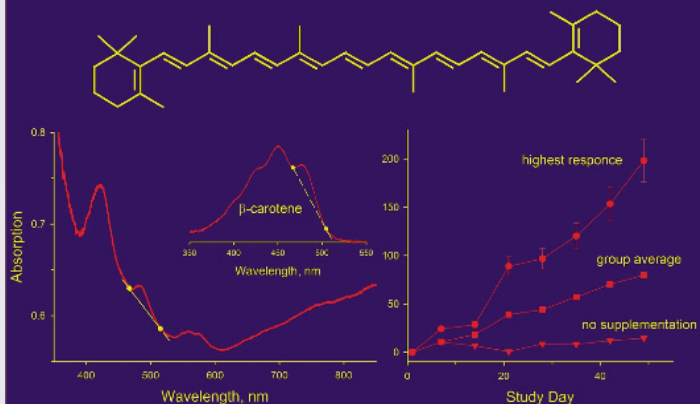
# Journal of Biophotonics (July 2012)

Journal of

**BIOPHOTONICS**

7/12

www.biophotonics-journal.org



**WILEY-VCH**

ISSN 1864-063X J. Biophotonics, Vol. 5, No. 7 (July), 477–592 (2012)

Impact Factor 2011:  
4.343

J. Biophotonics 5, No. 7, 559–570 (2012) / DOI 10.1002/jbio.201100122

Journal of

**BIOPHOTONICS**

FULL ARTICLE

## Dermal carotenoid measurements via pressure mediated reflection spectroscopy

Igor V. Ermakov and Werner Gellermann\*

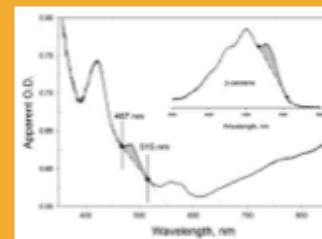
Department of Physics and Astronomy, University of Utah, Salt Lake City, UT 84112, USA

Received 7 November 2011, revised 23 December 2011, accepted 4 January 2012

Published online 10 February 2012

**Key words:** Reflection spectroscopy, skin, carotenoids, antioxidants

We describe a reflection-based method for the quantitative detection of carotenoid antioxidants in living human skin. The skin tissue site of interest is illuminated with broad-band white light spanning the spectral range from 350–850 nm and the spectral composition of the diffusely reflected light is analyzed in real time. Topical pressure is applied to temporarily squeeze blood out of the illuminated tissue volume. In this way the influence of oxy-hemoglobin on the reflection spectra is effectively reduced. After a short optical clearing time the carotenoid absorption becomes easily discernable in a 460–500 nm spectral window and its optical density can be calculated with high accuracy. Our empirical methodology provides a non-invasive rapid determination of skin carotenoid levels, can be used to monitor skin carotenoid concentration changes over time in response to carotenoid containing natural or supplemental diets, and is easily adaptable for applications in clinical and field settings.



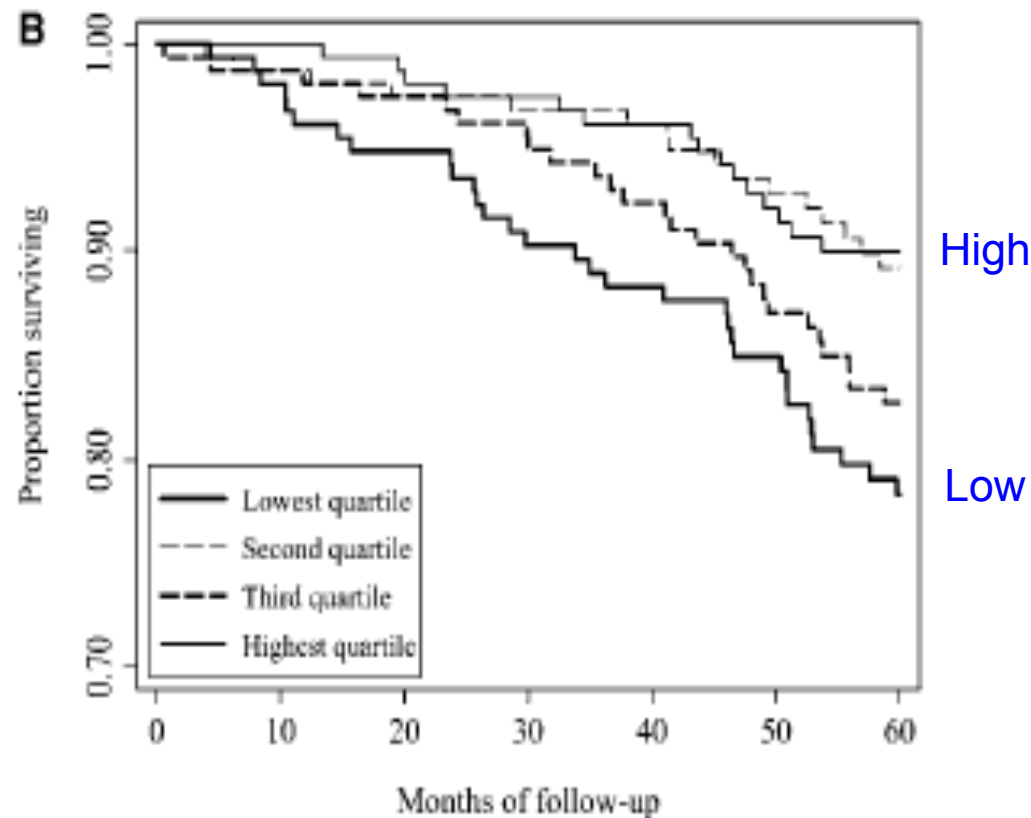
Determination of human skin carotenoid levels from reflection-based absorption spectra. After temporally squeezing blood out of the measured tissue volume, a carotenoid-related absorption band (shaded area), which is superimposed on a residual scattering background, is discernible in the 467 to 515 nm region. It is due to the one-phonon vibronic absorption transition of carotenoids, shown for comparison also in the insert for a pure  $\beta$ -carotene solution. The optical density of the skin carotenoid one-phonon absorption is used as a quantitative measure for the skin carotenoid levels.



**VIEW**

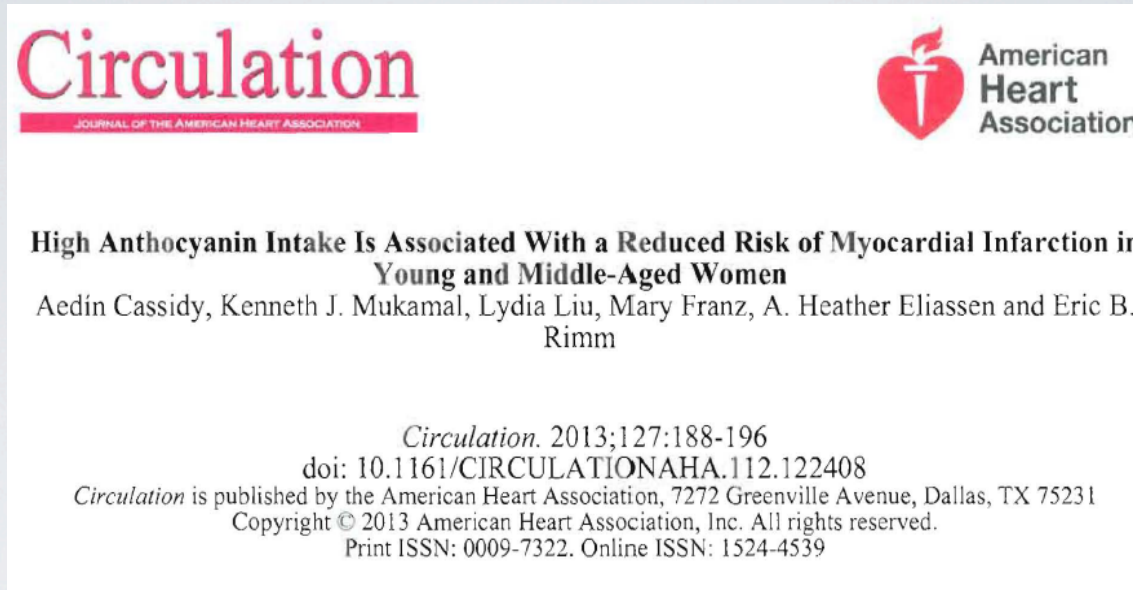


Total Serum Carotenoids  
5-year All-Cause Mortality  
Baltimore Health & Aging Studies  
Johns Hopkins Medical School



Ray et al., J. Nutr. 2006

# Flavonoids Improve Heart Health



Harvard School of Public Health

90,000 subjects / 18 years !

Consumption of berry flavonoids reduces heart attack risk ~30% !





# VAULT

