

Shawn Talbott, PhD
LDN, CNS, FACSM, FAIS, FACN

Chief Science Officer

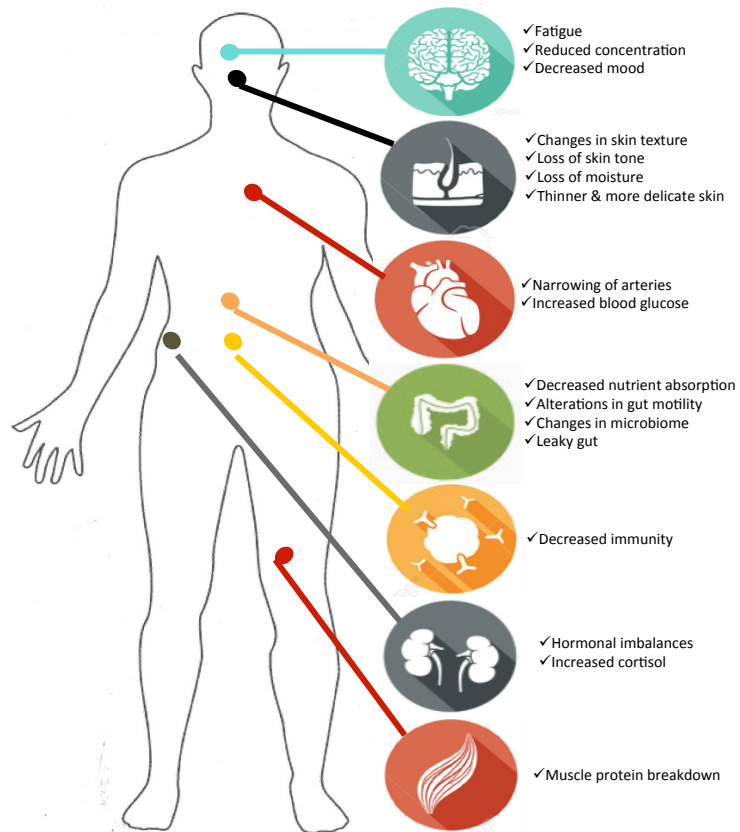


 **LifeVantage.** | ELITE ACADEMY

 **LifeVantage.**
IMAGINE



EFFECTS OF STRESS ON THE BODY



Cellular Stress Influences Every...

- Cell
- Tissue
- Organ
- System
- Organism



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 **LifeVantage.**
IMAGINE



 LifeVantage. | ELITE ACADEMY

 LifeVantage.
IMAGINE

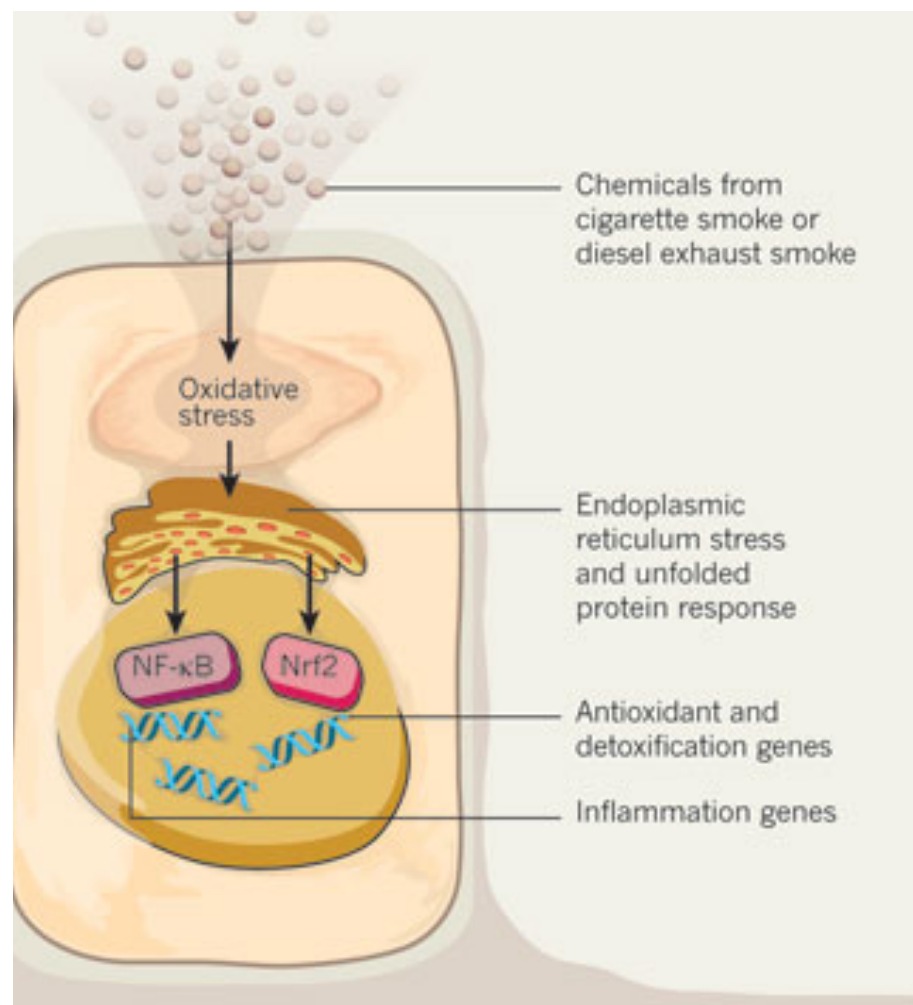
1968 = SOD

1999= Nrf2

2003 = Lifeline Ther. (Retail)

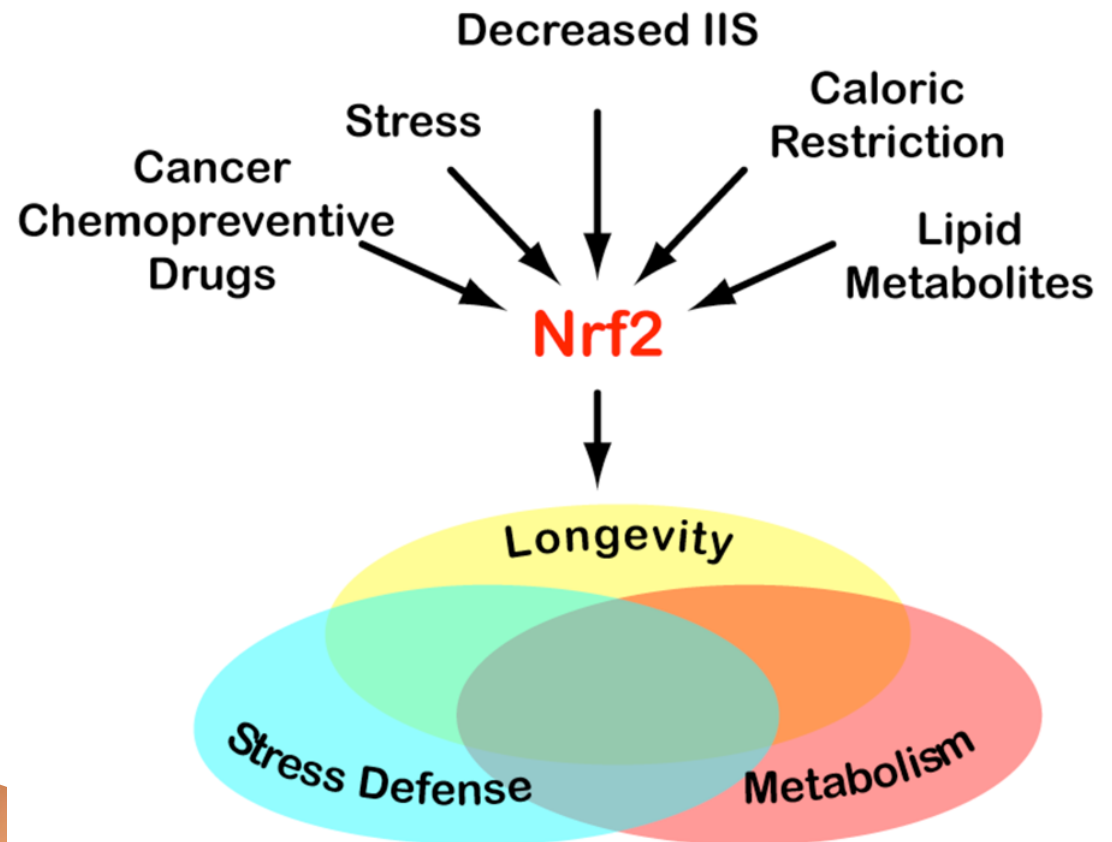
2009 = LifeVantage (MLM)

2015 = Nrf2 Science
Conference (UK)



Nrf2 as a *Convergence Point* for:

- Stress signals
- Metabolic signals
- Longevity signals



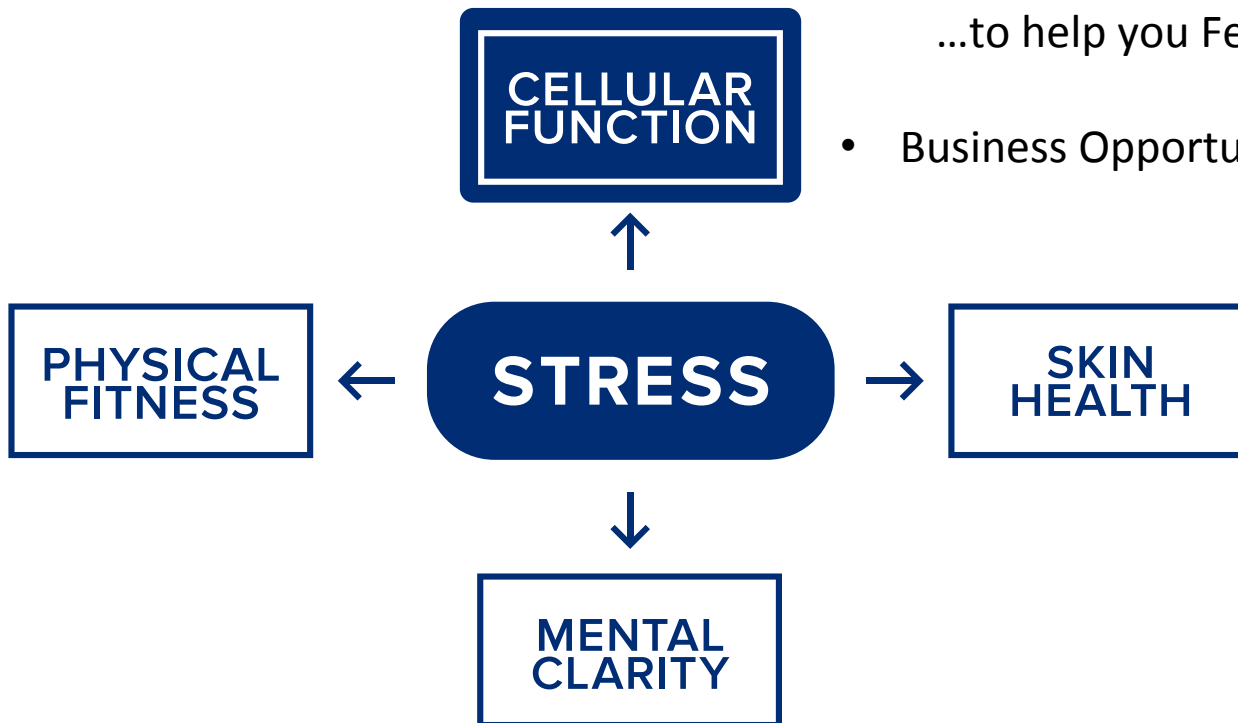


 LifeVantage. | ELITE ACADEMY

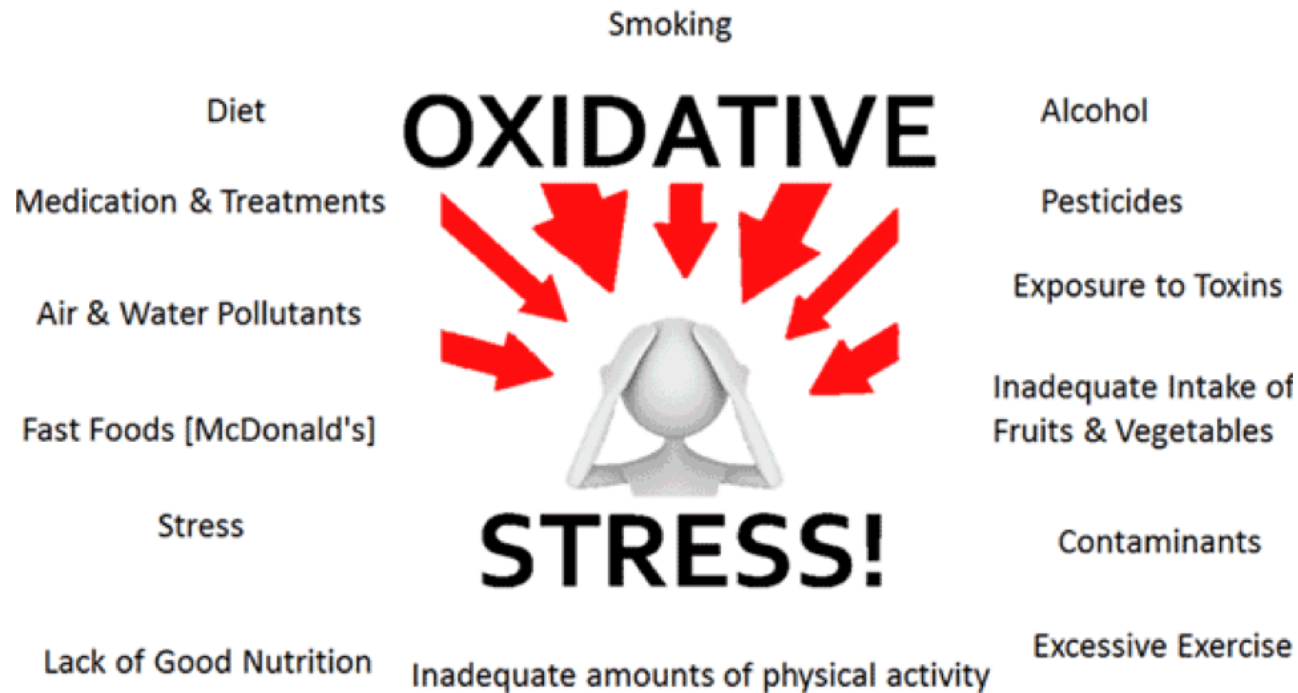
 LifeVantage.
IMAGINE

LifeVantage = “Stress Reduction Company”

- Products = to reduce “cellular stress”
...to help you Feel – Look – Perform Your Best
- Business Opportunity = to reduce “financial stress”



Causes of Oxidative Stress



Just about everything we do results in oxidation (or inflammation) producing potentially damaging free radicals!

Chronic Pulmonary Artery Pressure Elevation Is Insufficient to Explain Right Heart Failure

Harm J. Boer, MD, PhD^a; Ramesh Natarajan, PhD^a; Scott C. Henderson, PhD^a

Carlin

Free Radical Biology & Medicine 50 (2011) 700–709

Background—function, in of data on Methods and handling, in angioplasty hypertrophy that was as endothelial factor, in 1 (Protandim). Conclusion—hypertension



Contents lists available at ScienceDirect

Free Radical Biology & Medicine

journal homepage: www.elsevier.com/locate/freerad

Original Contribution

Protandim attenuates intimal hyperplasia in human saphenous v ex vivo via a catalase-dependent pathway

Binata Jodhar^{a,b,c}, Rashmeet K. Reen^{b,d}, Michael S. Firstenberg^c, Saradhadevi Varadl Jay L. Zweier^b, Keith J. Gooch^{a,b,*}

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Free radicals
Scavenging enzymes
Catalase
Human saphenous veins
Ex vivo culture
Protandim

ABSTRACT

Human saphenous veins (HSVs) are widely used for bypass grafts des patency. To evaluate the role of reactive oxygen species (ROS) signaling, stage pathology of vein-graft disease, and to explore the potential th endogenous antio model of HSV. In 1 ~3.6-fold increase Protandim, a nutt enzymes in severe isolated HSV. Prot respectively, and c catalase activity b and proliferation, l cultured HSV and

OPEN ACCESS Freely available online

The Chemopreventive Effects of Protandim: Modulation of p53 Mitochondrial Translocation and Apoptosis during Skin Carcinogenesis

Delira Robbins^a, Xin Gu^a, Runhua Shi^a, Jianfeng Liu^a, Fei Wang^a, Jacquelyne Ponville^a, Joe M. McCord^a, Yunfeng Zhao^{a,*}

^a Department of Pharmacology, Toxicology and Neuroscience, Louisiana State University Health Sciences Center, Shreveport, Louisiana, United States of America, ^b Department of Pathology, Louisiana State University Health Sciences Center, Shreveport, Louisiana, United States of America, ^c College of Life Science, Jilin University, Changchun, Jilin Province, China, ^d Department of Chemistry, Nicholls State University, Thibodaux, Louisiana, United States of America, ^e Department of Medicine, University of Colorado at Denver and Health Sciences Center, Aurora, Colorado, United States of America, ^f Fife-Weller Cancer Center, Louisiana State University Health Sciences Center, Shreveport, Louisiana, United States of America

Abstract

Protandim, a well defined dietary combination of 5 well-established medicinal plants, is known to induce endogenous antioxidant enzymes, such as manganese superoxide dismutase (MnSOD). Our previous studies have shown that the induction of various antioxidant enzymes, products of oxidative damage can be decreased. In addition, we have shown that tumor multiplicity and incidence can be decreased through the dietary administration of Protandim in the two-stage skin carcinogenesis mouse model. It has been demonstrated that cell proliferation is accompanied by cell death during DMBA/TPA treatment in the two-stage skin carcinogenesis model. Therefore, we investigated the effects of the Protandim diet on apoptosis and proposed a novel mechanism of chemoprevention utilized by the Protandim dietary combination. Interestingly, Protandim suppressed DMBA/TPA induced cutaneous apoptosis. Recently, more attention has been focused on transcription-independent mechanisms of the tumor suppressor, p53, that mediate apoptosis. It is known that cytoplasmic p53 rapidly translocates to the mitochondria in response to pro-apoptotic stress. Our results showed that Protandim suppressed the mitochondrial translocation of p53 and mitochondrial outer membrane proteins such as Bax. We examined the levels of p53 and MnSOD expression/activity in murine skin JB6 promotion sensitive (P+) and promotion-resistant (P-) epidermal cells. Interestingly, p53 was induced only in P+ cells, not P- cells, whereas MnSOD is highly expressed in P- cells when compared to P+ cells. In addition, wild-type p53 was transfected into JB6 P- cells. We found that the introduction of wild-type p53 promoted transformation in JB6 P- cells. Our results suggest that suppression of p53 and induction of MnSOD may play an important role in the tumor suppressive activity of Protandim.

(12) United States Patent Myhill et al.

(54) COMPOSITIONS FOR ALLEVIATING INFLAMMATION AND OXIDATIVE STRESS IN A MAMMAL

(75) Inventors: Paul R. Myhill, Castle Rock, CO (US); William J. Driscoll, Englewood, CO (US)

(73) Assignee: LifeLine Nutraceuticals Corporation, Englewood, CO (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35

(10) Patent No.: (45) Date of Patent:

Al-Shaar, "C-Reactive Protein and 2004, vol. 29, No. 23, pp. 2018-2 Anderson, et al., "Differential Resp Cells to Induction of Apoptosis by V H. Angiogenesis, 10:15A," *Cancer Res.*, Baker, et al., "Reduced RBC Vers Due to Endothelial," *Circul. Abbot.*, Barboza, et al., "Decreased Oxidativ alive Collin Supplemented with Fi row, 2003, vol. 10, pp. 837-842. Bhattacharya, et al., "Antioxidant 236-239.

American I Assoc: Learn

Protandim, a Fundamentally New Antioxidant Approach in Chemoprevention Using Mouse Two-Stage Skin Carcinogenesis as a Model

Jianfeng Liu^a, Xin Gu^a, Delira Robbins^a, Guohong Li^a, Runhua Shi^a, Joe M. McCord^a, Yunfeng Zhao^{a,*}

¹ Department of Pharmacology, Toxicology and Neuroscience, Louisiana State University Health Sciences Center, Shreveport, Louisiana, United States of America, ² Department of Pathology, Louisiana State University Health Sciences Center, Shreveport, Louisiana, United States of America, ³ Department of Neurosurgery, Louisiana State University Health Sciences Center, Shreveport, Louisiana, United States of America, ⁴ Fife-Weller Cancer Center, Louisiana State University Health Sciences Center, Shreveport, Louisiana, United States of America, ⁵ Department of Medicine, University of Colorado Health Sciences Center, Denver, Colorado, United States of America

Abstract

Oxidative stress is an important contributor to cancer development. Consistent with that, antioxidant enzymes have been demonstrated to suppress tumorigenesis when being elevated both in vitro and in vivo, making induction of these enzymes a more potent approach for cancer prevention. Protandim, a well-defined combination of widely studied medicinal plants, has been shown to induce superoxide dismutase (SOD) and catalase activities and reduce superoxide generation and lipid peroxidation in healthy human subjects. To investigate whether Protandim can suppress tumor formation by a dietary approach, a two-stage mouse skin carcinogenesis study was performed. At the end of the study, the mice on a Protandim-containing basal diet had similar body weight compared with those on the basal diet, which indicated no overt toxicity by Protandim. After three weeks on the diets, there was a significant increase in the expression levels of SOD and catalase, in addition to the increases in SOD activities. Importantly, at the end of the carcinogenesis study, both skin tumor incidence and multiplicity were reduced in the mice on the Protandim diet by 33% and 57% respectively, compared with those on basal diet. Biochemical and histological studies revealed that the Protandim diet suppressed tumor promoter-induced oxidative stress (evidenced by reduction of protein carbonyl levels), cell proliferation (evidenced by reduction of skin hyperplasia and suppression of PKC/JNK/Jun pathway), and inflammation (evidenced by reduction of ICAM-1/VCAM-1 expression, NF- κ B binding activity, and nuclear p65/p50 levels). Overall, induction of antioxidant enzymes by Protandim may serve as a practical and potent approach for cancer prevention.

healthcare

The Dietary Supplement Protandim® Decreases Plasma Osteopontin and Improves Markers of Oxidative Stress in Muscular Dystrophy Mdx Mice

Muhammad Muddasir Qureshi, MD, MPH

Warren C. McClure, MS

Nicole L. Arevalo, MA

Rick E. Rabon, BA

Benjamin Mohr

Swapan K. Bose, BS, BPharm

Joe M. McCord, PhD

Brian S. Tseng, MD, PhD

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Molecular Aspects of Medicine

journal homepage: www.elsevier.com/locate/mam



Oxidative Stress in Health and Disease: The Therapeutic Potential of Nrf2 Activation

Brooks M. Hybertson^{a,b}, Bifeng Gao^a, Swapan K. Bose^a and Joe M. McCord^{a,b}

^aDepartment of Medicine, Division of Pulmonary Science and Critical Care Medicine, University of Colorado at Denver, Aurora, CO 80045

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journal homepage: www.elsevier.com/locate/freeradbiomed



Original Contribution

Synergistic induction of heme oxygenase-1 by the components of the antioxidant supplement Protandim

Kalpna Velmurugan^{a,b}, Jawed Alam^c, Joe M. McCord^d, Subbiah Pugazhenthi^{a,b,*}

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^b Section of Endocrinology, Veterans Affairs Medical

^c Department of Molecular Genetics, Oklahoma Medical

^d Division of Pulmonary Sciences, Department of Me



Available online at www.sciencedirect.com

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Free Radical Biology & Medicine 40 (2006) 341–347

Original Contribution

The induction of human superoxide dismutase and catalase in vivo: A fundamentally new approach to antioxidant therapy

Sally K. Nelson^{a,b}, Swapan K. Bose^a, Gary K. Grunwald^c, Paul Myhill^d, Joe M. McCord^{a,b,d,*}

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^b Department of Medicine, University of Colorado Denver Health Sciences Center, Denver, CO 80262, USA

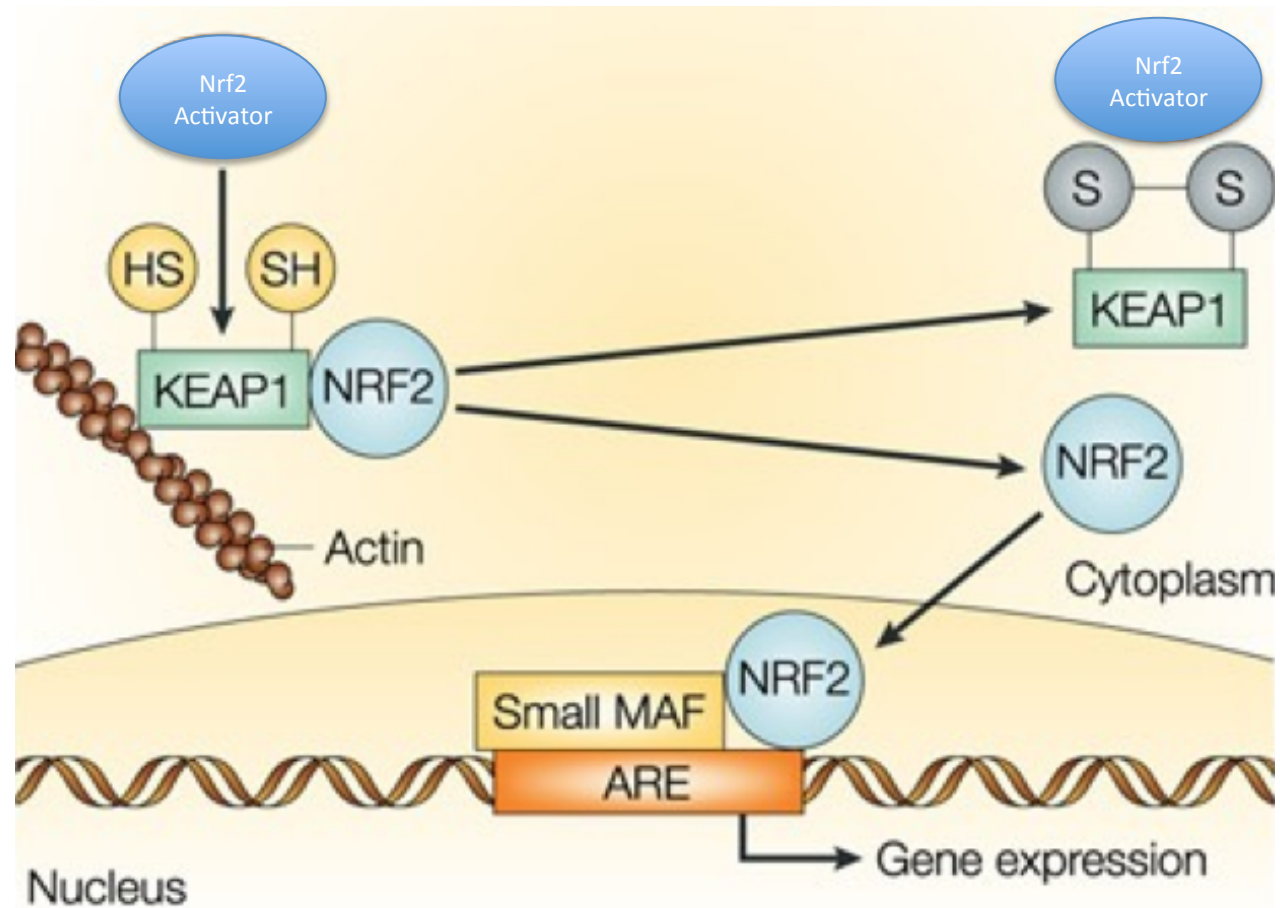
^c Department of Preventive Medicine and Biometrics, University of Colorado Denver Health Sciences Center, Denver, CO 80262, USA

^d LifeLine Therapeutics, Denver, CO, USA

Received 22 June 2005; revised 24 August 2005; accepted 28 August 2005

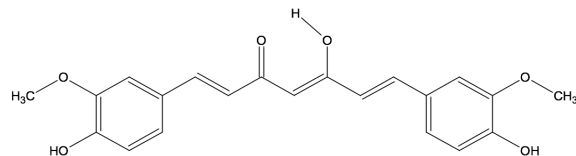
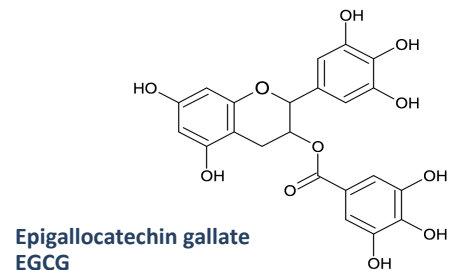
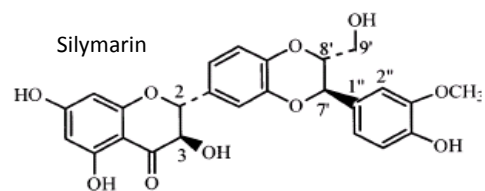
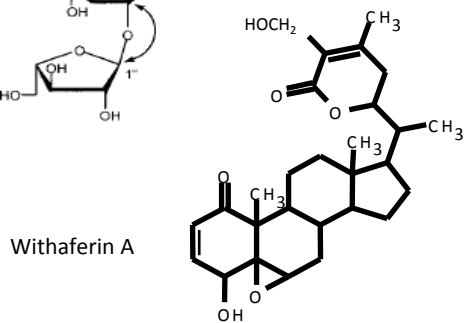
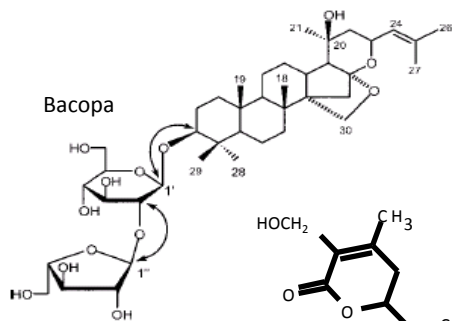
Abstract

A composition consisting of extracts of five widely studied medicinal plants (Protandim) was administered to healthy human subjects ranging in age from 20 to 78 years. Individual ingredients were selected on the basis of published findings of induction of superoxide dismutase (SOD) and/or catalase in rodents in vivo, combined with evidence of decreasing lipid peroxidation. Each ingredient was present at a dosage sufficiently low to avoid any accompanying unwanted pharmacological effects. Blood was analyzed before supplementation and after 30 and 120 days of supplementation (675 mg/day). Erythrocytes were assayed for SOD and catalase, and plasma was assayed for lipid peroxidation products as thiobarbituric acid-reacting substances (TBARS), as well as uric acid, C-reactive protein, and cholesterol (total, LDL, and HDL). Before

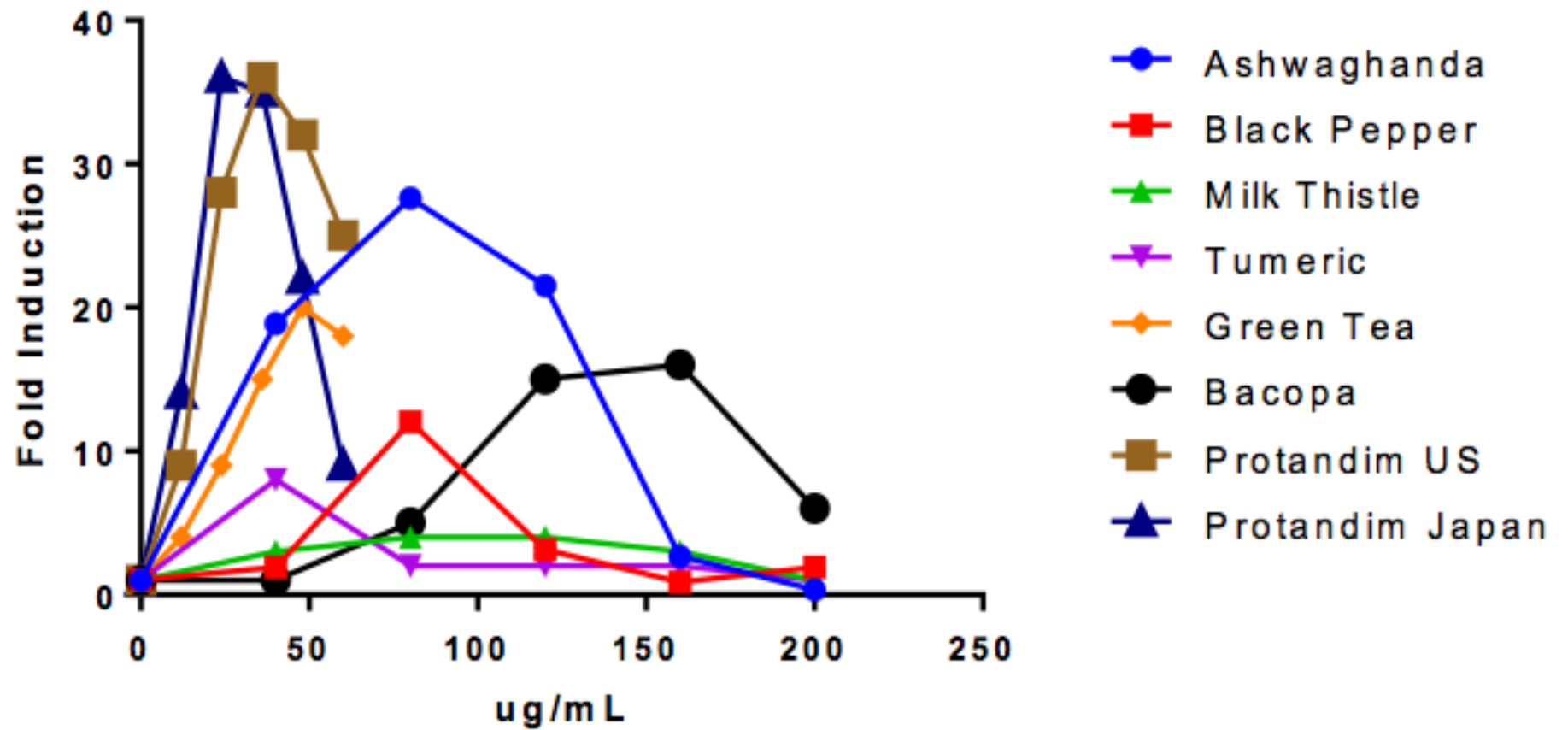


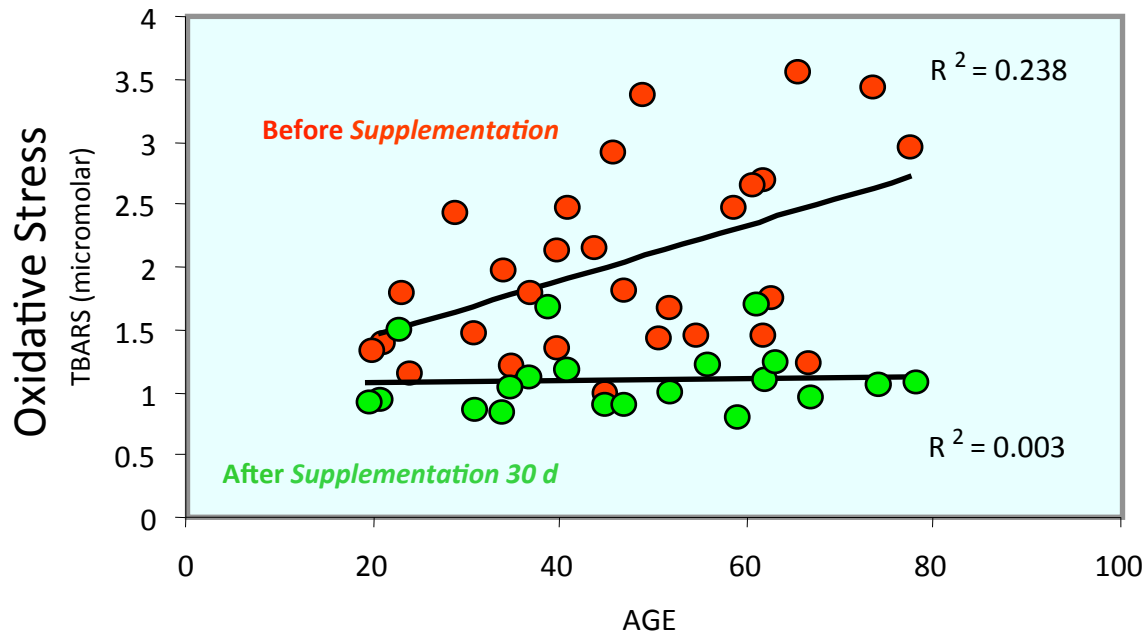
Don't *Take* Antioxidants
Make Antioxidants!

Nrf2 = a powerful “master regulator” of antioxidant enzymes and survival genes



ARE reporter assay





After 30 days...

“Remarkably, this age-dependent increase in TBARS was almost completely abolished by Protandim treatment (Fig. 1D), with an overall average reduction of the oxidative stress marker by 40%.”

Look Your Best



 LifeVantage. | ELITE ACADEMY

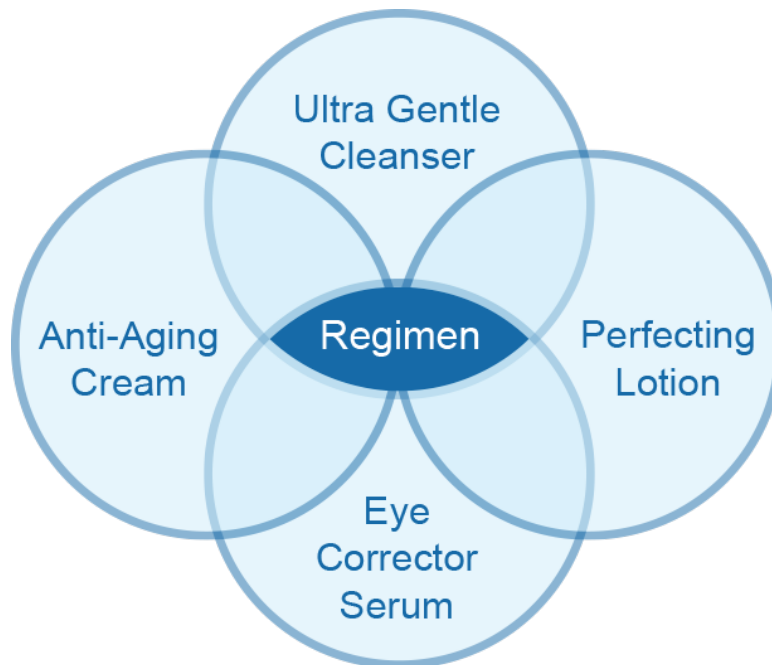
 LifeVantage.
IMAGINE

What constitutes Enhanced Nrf2 Technology?

- Original 5-plant blend (*Bacopa*, *Milk Thistle*, *Turmeric*, *Green tea*, *Black Pepper* extracts)
- Enhanced with:
 - Brassica extracts (cabbage, broccoli, cauliflower, wasabi. ...)
 - Plantain (Plantago) extract
- **Steps up the skin's own protective barrier against oxidative stress**



Enhanced Nrf2 Skin Care Regimen



- Working together to rejuvenate and heal aging skin
- With the latest in enhanced Nrf2 technologies for more protection against oxidative stress
- Yuzu fragrance in all but eye serum

LOOK Your Best...

TrueScience Regimen is equal/better compared to top “prestige” brands

Competitor	Study of 86 ladies	TS @ 28 Days	TS @ 56 Days
89% Perricone MD Cold Plasma at 4 weeks 75% Jeunesse Global Luminesce Cellular Rejuvenation at 8 weeks	Smoother looking skin	89%	94%
80% Nu Skin TruFace at 3 months	Firmer looking skin	81%	85%
78% L'Oreal Youth Code at 8 weeks	Younger looking skin		87%
70% Lancôme Dream Tone at 8 weeks 79% SkinMedica Lytera at 12 weeks	More even skin tone		83%
79% Clarins Double Serum at 4 weeks [Hydric + Lipidic System] 80% Nu skin 180°System at 8 weeks	Less noticeable fine lines and wrinkles	78%	82%

Cold Plasma is a trademark of Perricone MD

Youth Code is a trademark of L'Oreal

Dream Tone is a trademark of Lancôme

Lytera is a trademark of SkinMedica

Double Serum [Hydric + Lipidic System] is a trademark of Clarins

 LifeVantage.
FREEDOM

Versus Select Competitive Ads*

Day 1



Day 60



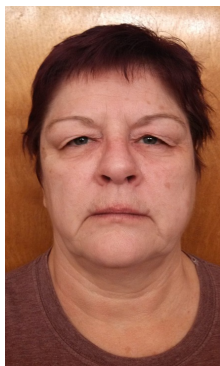
Day 1



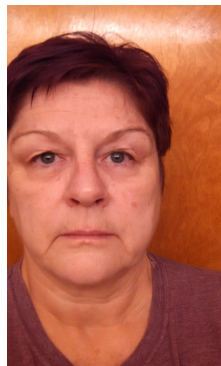
Day 60



Day 1



Day 60



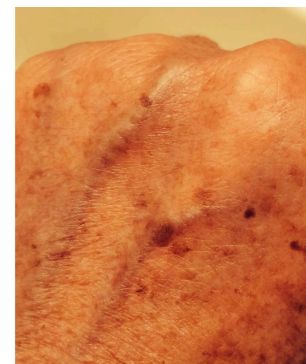
Day 1



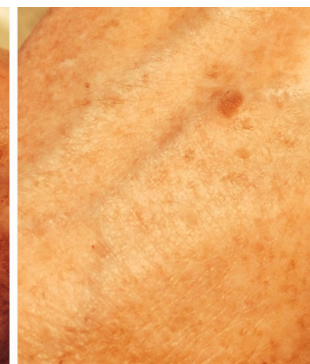
Day 30



Day 1

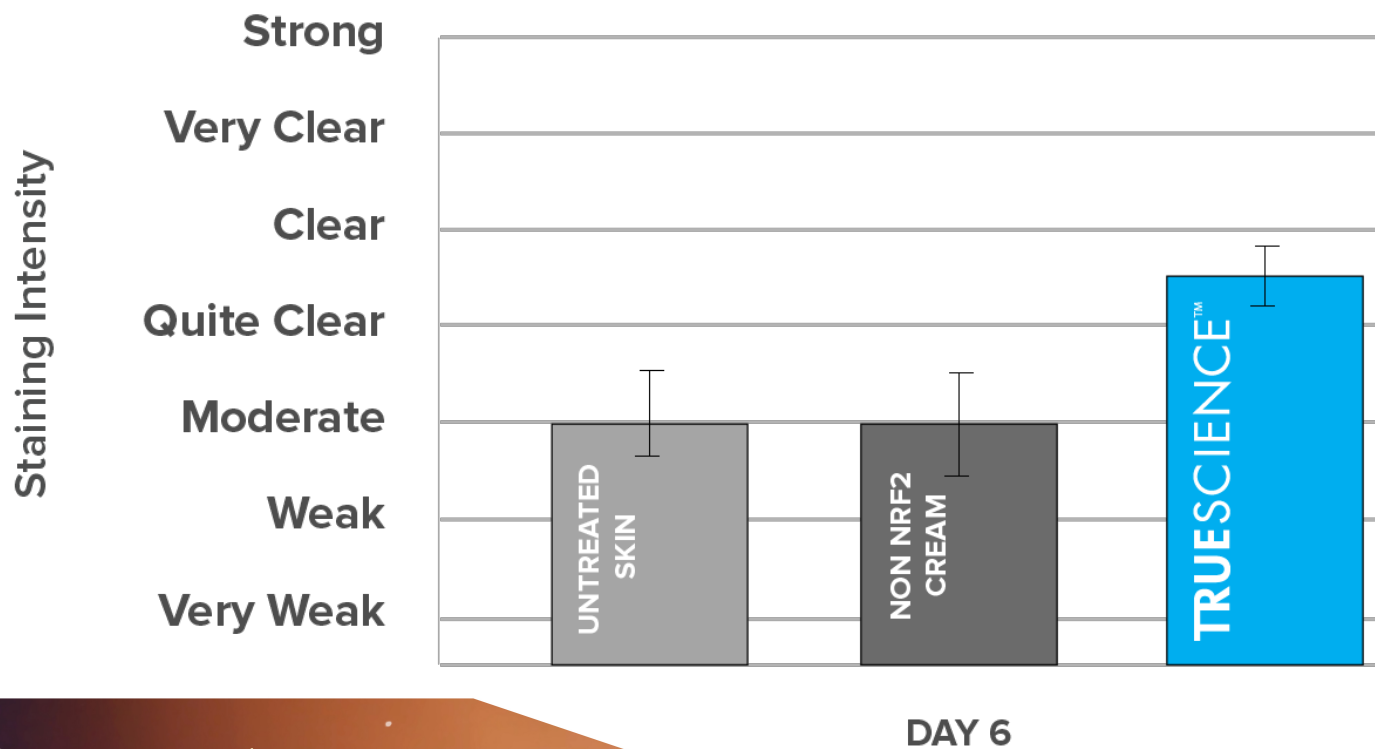


Day 30



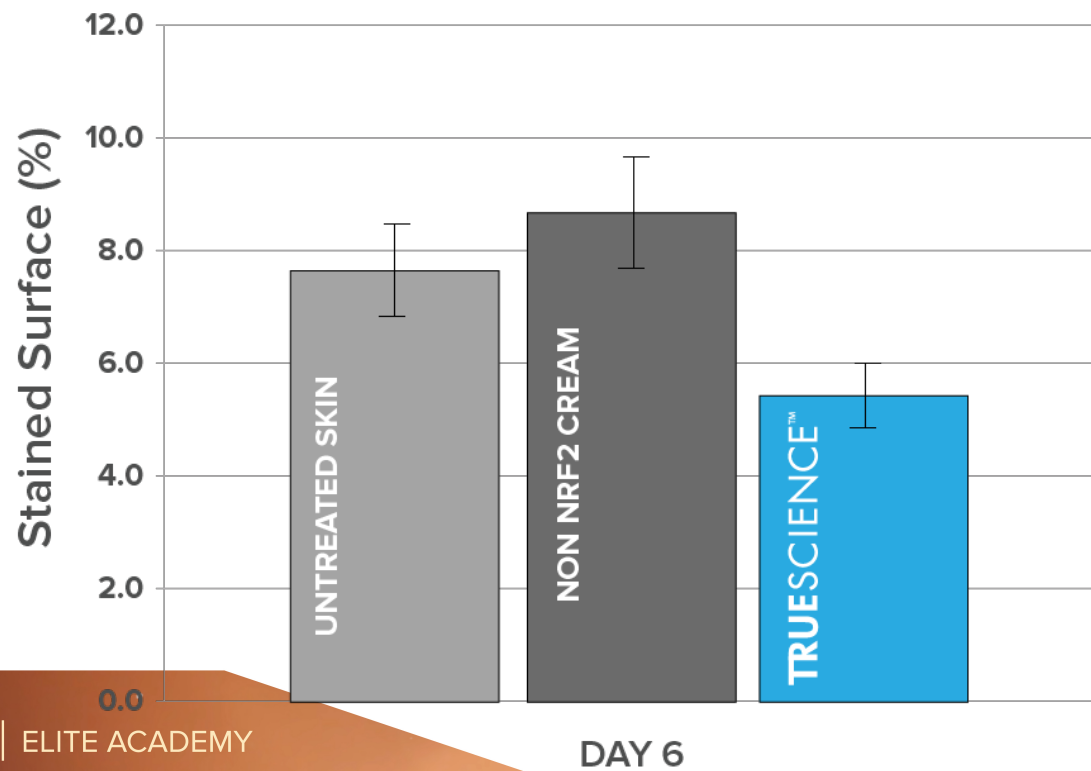
Nrf2 Staining Intensity 24 hours after UV Exposure

TrueScience™ Facial Cream results in more Nrf2 in skin, thus more protection!



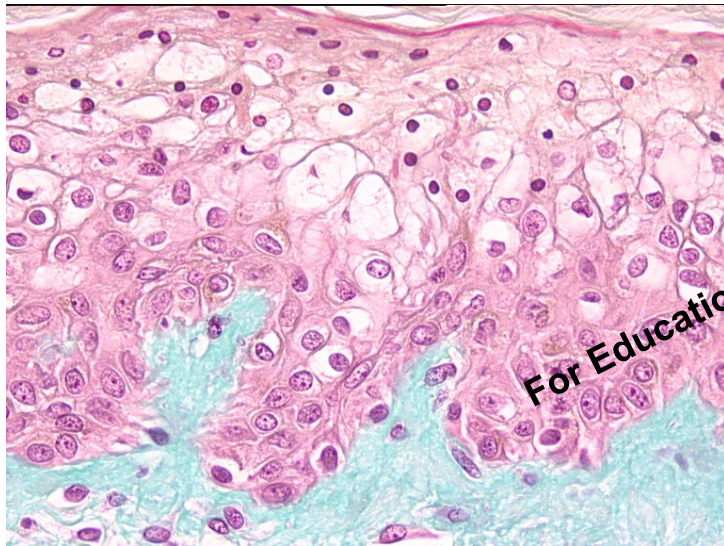
Less Thymine Dimers with TrueScience

TrueScience™ Facial Cream with Nrf2 protects the cell DNA!



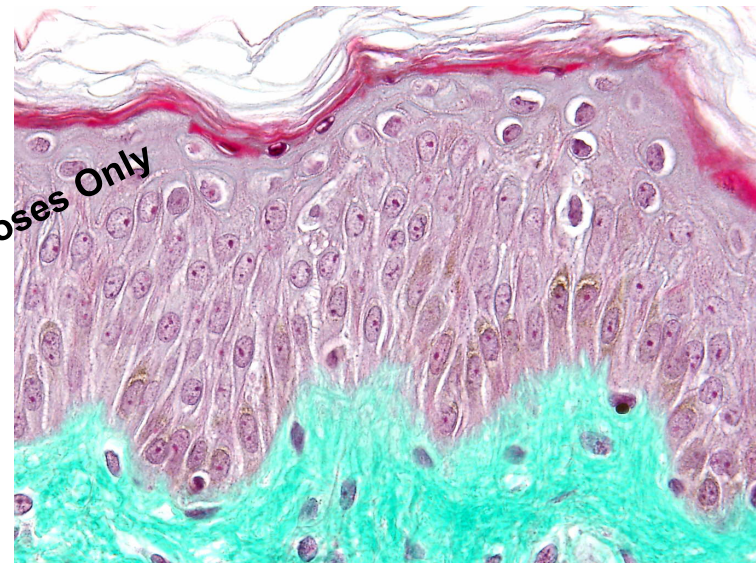
Help your Skin... ↴

Retinol Facial Cream after 7 days



6 to 7 cell layers with damaged and bloated cells & pyknotic nucleus (condensed chromatin);

Nrf2 Facial Cream after 7 Days



6 to 7 cell layers with good morphology and organization
Denser dermis

50 μ m

Research on TS regimen and Skin Explants will be presented at the International Federation of the Society of Cosmetic Chemists (IFSCC) in September 2015 in Zurich, Switzerland

Title: Anti-aging effect of a new topical cream demonstrated by gene modulation and morphology studies of the skin layers

Objective: With aging comes great wisdom and older looking skin. For years, retinoids have been held forth as the gold standard of anti-ageing treatments. Adverse effects to retinoids, which are limiting their continued use, prompted us to develop alternative molecules behaving superiorly in terms of tolerability, stability and efficacy. We present a new cream (TS cream) that showed extensive anti-ageing efficacy throughout all skin layers with morphologically significant re-organization at the cellular level.....

Title: A new four product skin care regimen for the treatment of intrinsic and extrinsic aging

Objective: Customers combine many cosmeceutical products to regain their youthful look, even though they have not been tested together. Thus we designed a 4-product regimen which is complementary in its composition, synergistically addressing many aspects of skin aging. Although the regimen did not contain any UV filters, it contained a unique blend of botanicals which confers unexpected protection against UV-induced oxidative stress and DNA damage.....

TrueScience™ Facial Cream with Advanced Nrf2 Technology has been shown to:

- Increase Nrf2 Protein amount, thus improve resistance to oxidative stress
- Boost skin protection from UV exposure by reducing DNA damage
- Fight the signs of aging though **all** layers of the skin

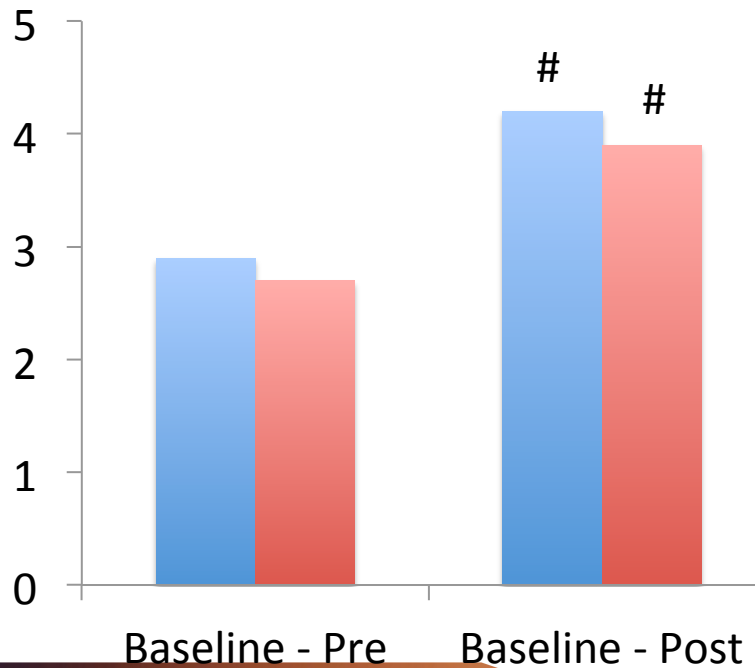


TrueScience Shaving Study

- 27 subjects (13 African-Americans), 30-65y
- 7 day usage
 - Ultra-Gentle Cleanser (shave)
 - Perfecting Lotion (repair)
 - Facial Cream (protect)
- Measures Pre/Post (trained technician)

Shaving – Irritation

0 = None / 2-3 Mild / 4-5 Moderate / 8-9 Severe

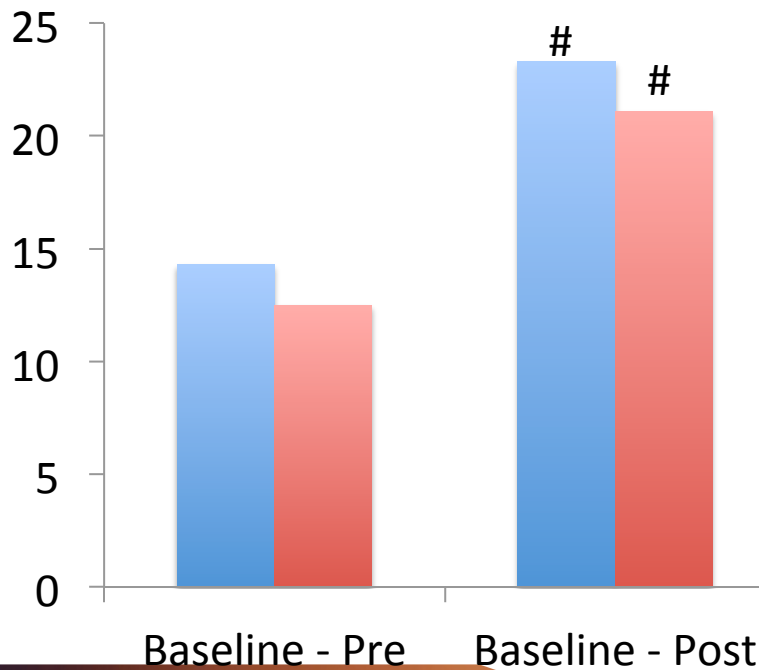


■ Group
■ Af-Am

Shaving – Barrier Function

TEWL – trans-epidermal water loss (higher = more damage)

5-12 Healthy / 13-16 Strained / 17+ Critical



■ Group
■ Af-Am

Shaving - Results

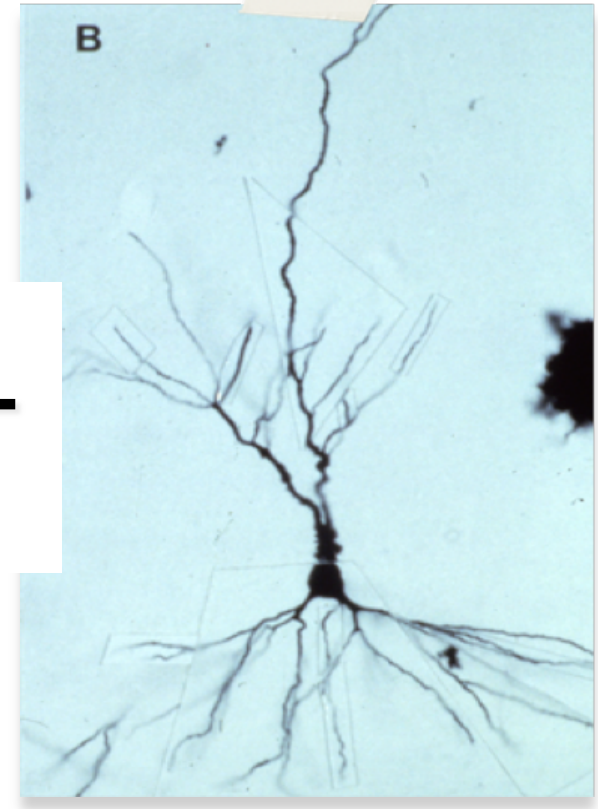
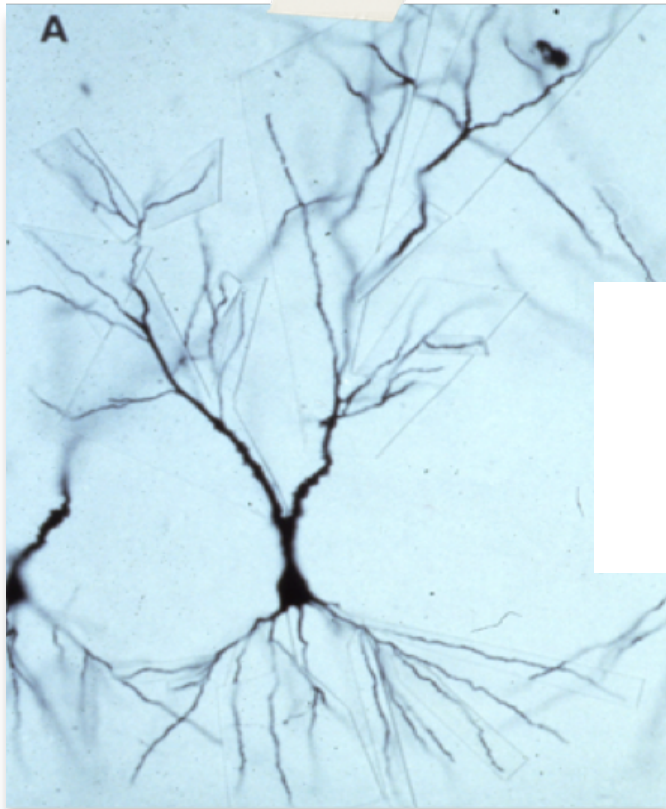


- Irritation Reduced 32%
- Barrier Function Improved 28%
- High Response rate (85%-100%)
- Good for Guys! (Bulletproof Skin)

PERFORM Your Best...



Tired, Stressed, Depressed... "Off"



NEURONAL ATROPHY

NORMAL STRESS

Healthy, Large, Many Projections, Optimal Function

HIGH STRESS

Small, Thin, Disrupted, Structural Damage, Poor Function



AXIO ENERGY

➤ Energy Boost
No Jitters

AXIO ENDURE

➤ Sustained
Energy

- Increases concentration
- Helps improve learning performance & mental acuity
- Promotes positive mood
- Provides protection from cellular stress
- Helps support normal nervous system function & brain health



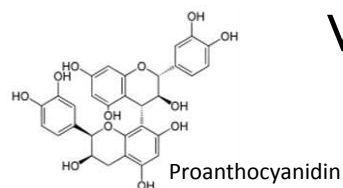
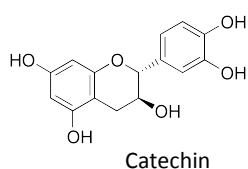
Enhanced Nrf2 Technology

New Zealand Pine Bark, Green Tea, Quercetin	• Nrf2 activators. • Help protect against cellular stress.
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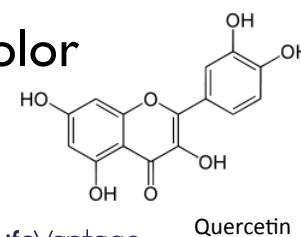
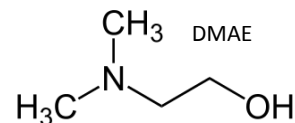
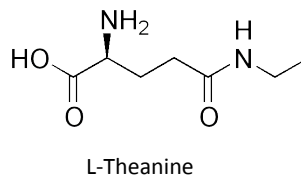
Additional Ingredients

Suntheanine (L-theanine)	• Helps promote a state of alertness without the jitters. • Helps improve learning performance, focus, & mental acuity.
Magnesium	• Helps support normal nervous system function & brain health. • Promotes healthy energy metabolism.
B Vitamins	• Helps maintain normal cellular function. • Helps promote a positive mood. • Helps support optimal working memory. • Helps reduce fatigue and promotes healthier energy.
*Caffeine	• Helps promote alertness, mental clarity, & sense of energy.
*DMAE	• Helps support normal brain & nervous system function. • Helps optimize memory & attention.

*Ingredients only found in Axio Energy



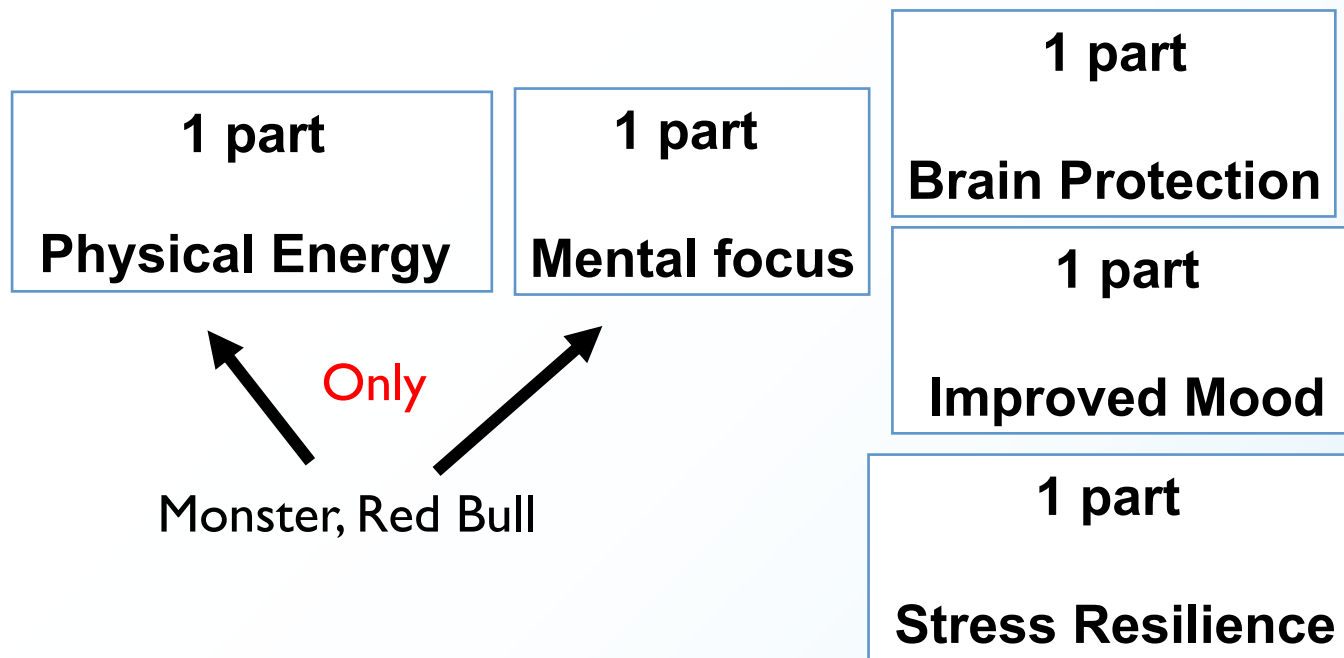
With Natural Flavors, Sweetener and Color



 **LifeVantage.** | ELITE ACADEMY

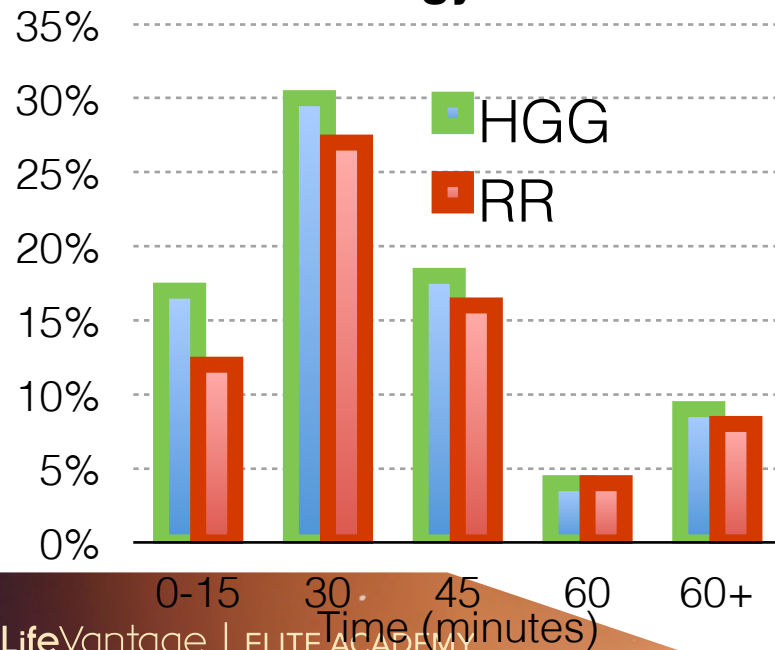
 **LifeVantage.**
IMAGINE

Axio : “Multi-Dimensional” Smart Energy

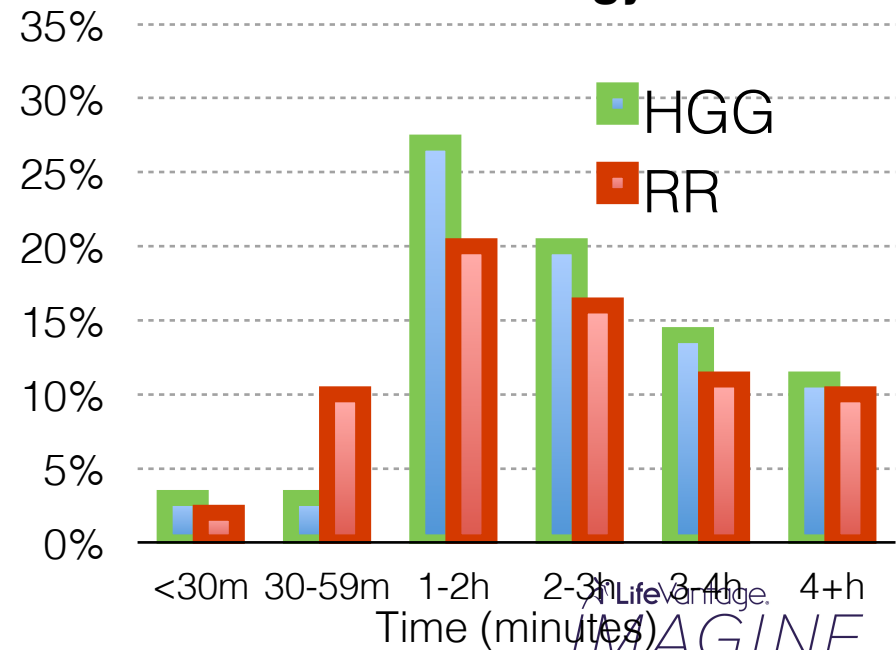


Axio Usage Survey

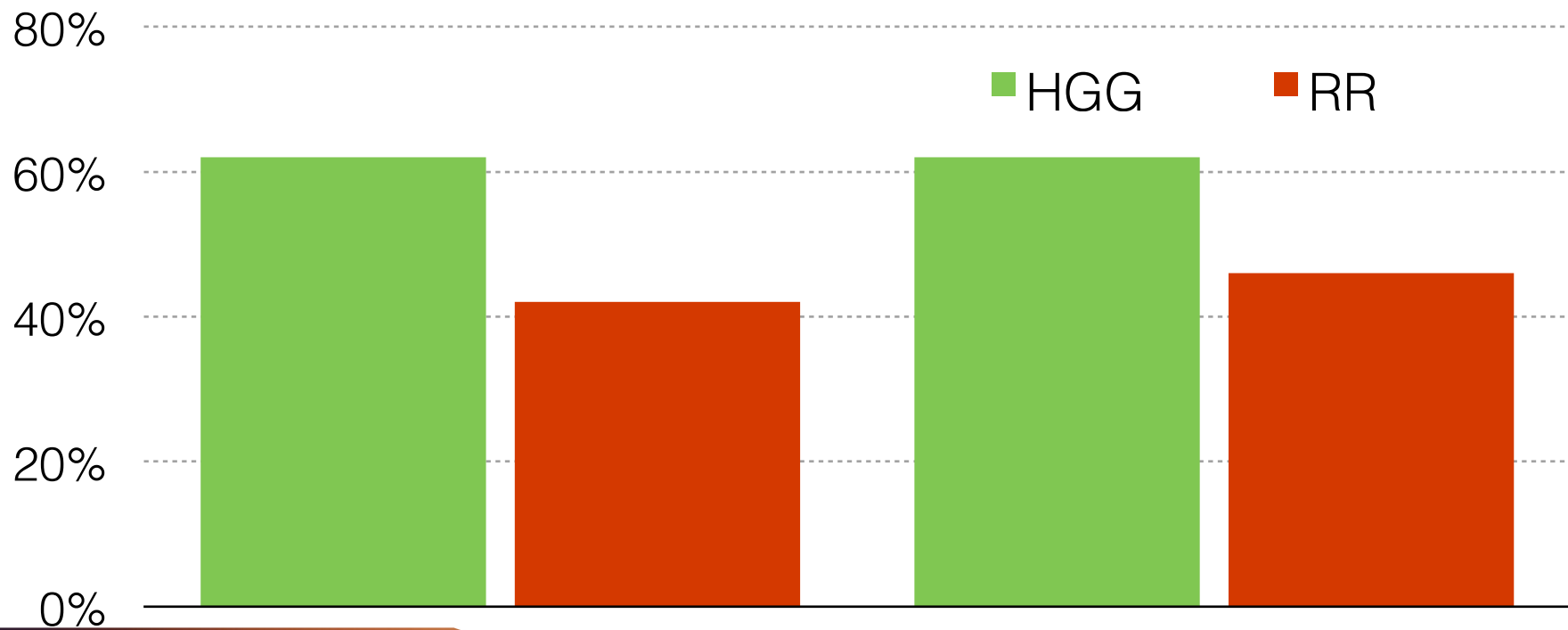
Initial Energy Boost



Duration of Energy Boost



Axio Usage Survey



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Accomplish More

LifeVantage.
IMAGINE

Axio Usage Survey

- "It felt like a morning cup of coffee with the energy it gave me, but more than that it **improved my focus.**"
- "I liked the energy that it gave me, I would say it lasted pretty good maybe **4 or 5 hours.**"
- "I was pleasantly surprised at this product's ability to **keep me energized, awake and focused** without harmful stimulants and **without feeling nervous, jittery or having rapid heart rate.** I would take this over caffeine any day."
- "It was a very subtle transition to having energy, just like I **naturally** had the energy. It was a good amount of energy too. **Not too wired**, not too draggy. **The perfect amount.** I didn't feel like it wore off halfway through the day or that I needed more energy. I also did not have a difficult time falling asleep at night because of it. I would **definitely buy this** instead of many other energy drinks or supplements."



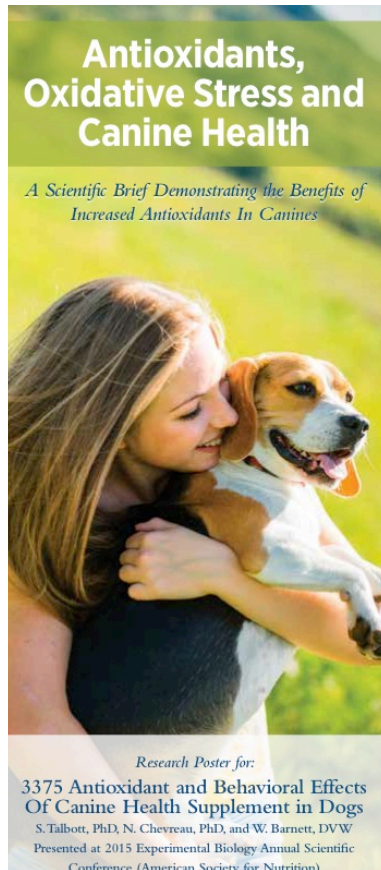
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LifeVantage Lab Series



- NEW Episode 1
 - Product Overview w/Axio
 - NEW Episode 7
 - Scientific Advisory Board
 - LifeVantage LIVE! webinars
 - March 4 (Nrf2 Science)
 - April 22 (Protandim/CH)
 - May 6 (Nrf2 & Skin)
- LifeVantage.com/Live/



Antioxidant and Behavioral Effects of Canine Health Supplement in Dogs

Conclusions

Dietary supplementation of dogs for 60-days with Canine Health resulted in a significant improvement in overall owner perception of pet behavior, as well as notable trends for an increase in catalase, a reduction in TBARs, and improved cognitive function.



The Proven Science Behind Nrf2's
Benefits for Athletic Performance
and Active Lifestyles

SHAWN TALBOTT, PH.D.

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Mitochondrial Biogenesis in Response to Exercise or Hydrogen Peroxide Treatment Is Not Blunted by Upregulation of Endogenous Antioxidants

Major Findings:

- Vitamin C supplements *reduced* cellular adaptations to exercise training
- Protandim supplementation allowed normal post-exercise cellular adaptations

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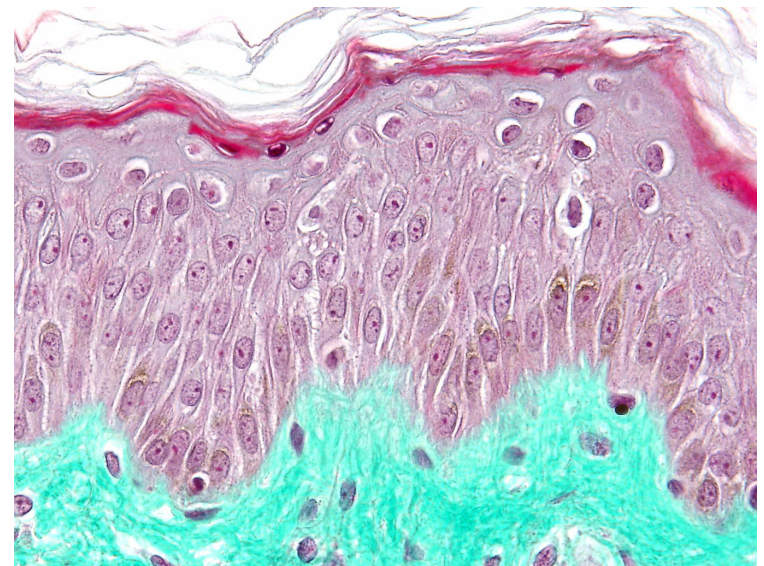
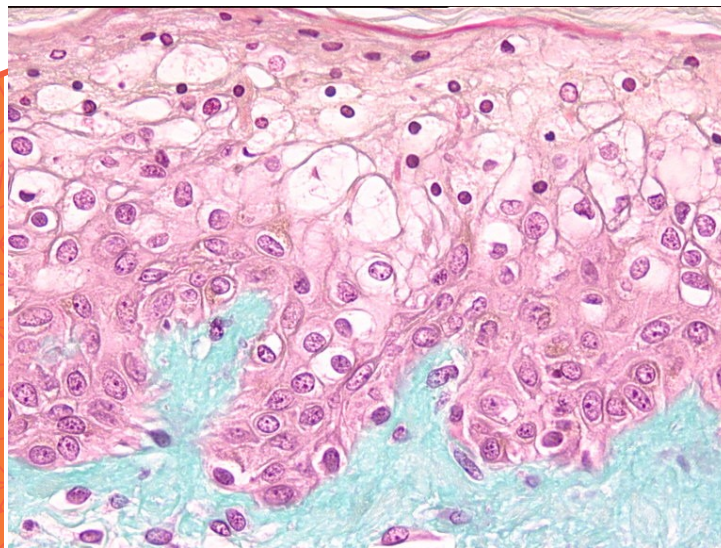
Nrf2 & YOU

The Skin Health
Breakthrough

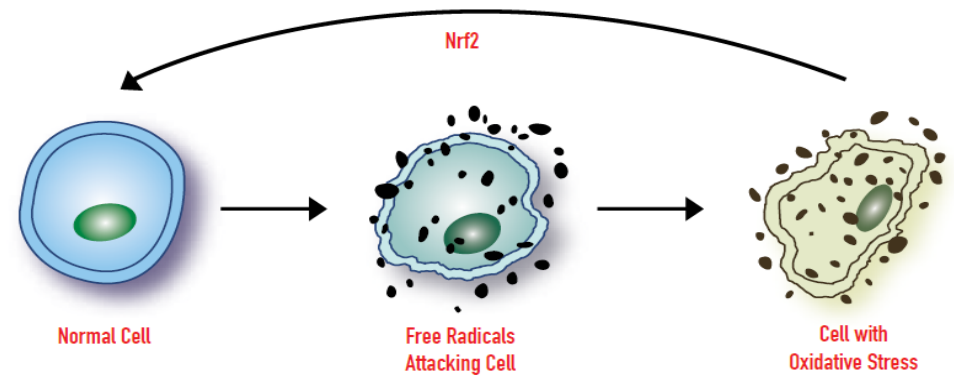
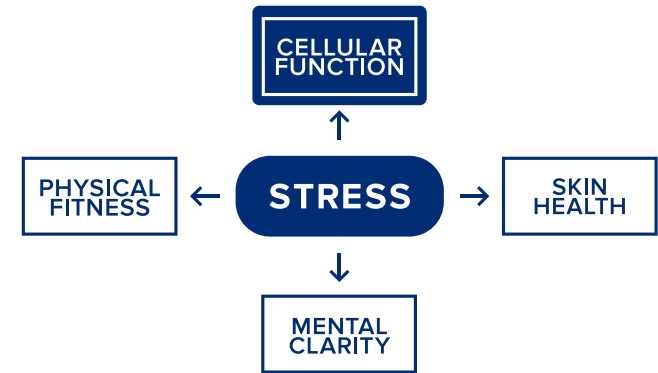
The Proven Science Behind Nrf2's
Skin-Protecting Benefits

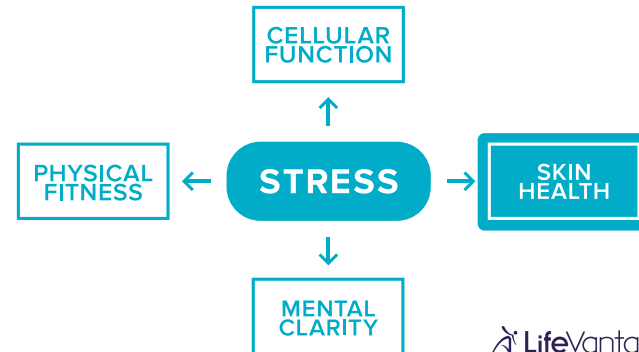
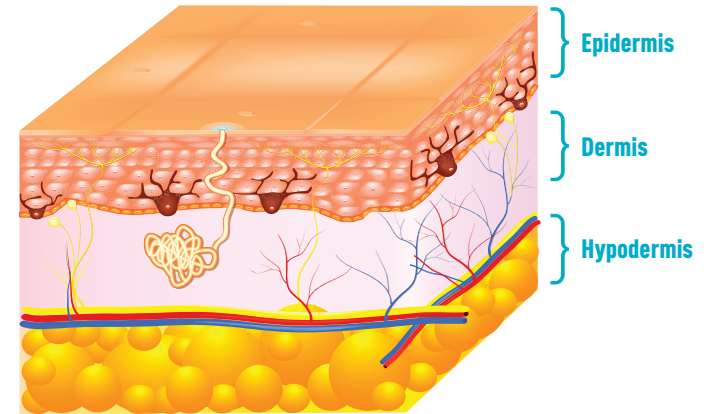
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DEADLY ANTIOXIDANTS

Why Your Daily Vitamins May Be Causing Cancer and
Shortening Your Life and How Nrf2 Can Turn on Your
Body's Own Antioxidants for Optimal Health

SHAWN TALBOTT, PH.D.



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BROCHURE COMBO PACK



- 25 - The Cancer Breakthrough
- 25 - The Nervous System Breakthrough
- 25 - The Cardiovascular Breakthrough
- 25 - The Skin Health Breakthrough
- 25 - The Canine Breakthrough

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Nrf2Science

Hype v. Hope



LifeVantage Value Proposition

Unmatched opportunity to build an independent health business

