

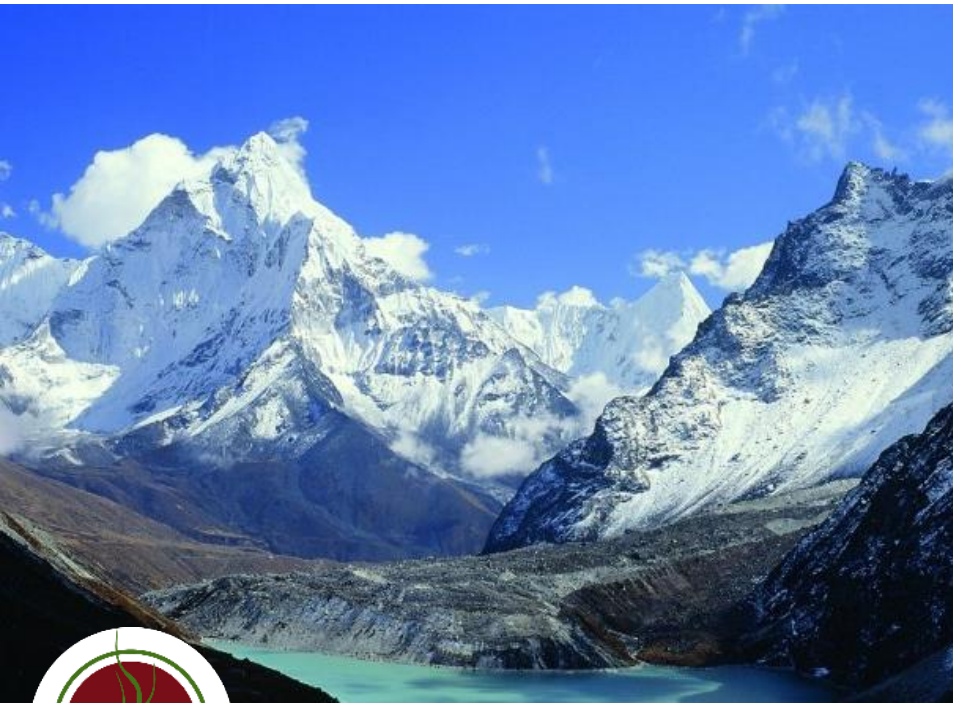


algaehealth
IMPROVING HEALTH WITH ALGAE

AstaZine®
THE WORLD'S PUREST
Natural Astaxanthin

AstaZine®

THE WORLD'S PUREST
Natural Astaxanthin



From the Pure Waters of
the Himalayan Mountains...

AstaZine®

THE WORLD'S PUREST
Natural Astaxanthin



...to the World's Second
Largest Astaxanthin Farm

Introducing: AstaZine®

THE WORLD'S PUREST
Natural Astaxanthin



The supplement
YOU CAN FEEL





OUR COMPANY

Focus is on unsurpassed quality at reasonable pricing

Biggest market is Japan (with the world's toughest quality standards)

Supplying most of the world's largest supplement companies

Algae Health Sciences (AlgaeHealth) is a subsidiary of BGG dedicated to the research, development and marketing of products from algae





OUR COMPANY

Founded in 1995

450 employees and
6 production sites

32 patents and
5% of revenue
invested in R&D

Facilities in USA,
Japan, Europe
and China



OUR FARM

LEADING *HAEMATOCOCCUS* FARM

World's second largest
Natural Astaxanthin
producer

All glass tubing
to protect from
contamination

Natural process using
the sun's energy

Pristine growing
region, clean air
& water



OUR FARM

WORLD CLASS LABORATORIES

State-of-the-art

Ultra-hygienic

“Most impressive labs
on the algae scene”



OUR FARM

CAPACITY EXPANSION

Nearby land earmarked
for expansion

Doubling size of farm to
160 acres (64 hectares)

World's largest
producer by 2021

The Future and beyond

640,000 square meter
Astaxanthin farm



OUR FARM EXPANSION CAPABILITY

Worldwide Astaxanthin
demand exceeded
supply from 2011 – 2014

Every supplier was
out-of-stock with
horrible lead times

This will never happen
again due to AlgaeHealth's:

- Ability to expand capacity quickly and efficiently
- (Went from small producer to world's second largest in only 6 months)





OUR FARM

WATER SOURCE

From the Tibetan
Plateau in the
Himalayan Mountains

Run through
reverse osmosis
for additional safety



*Located next to the
Pristine Stone Forest*

OUR FARM

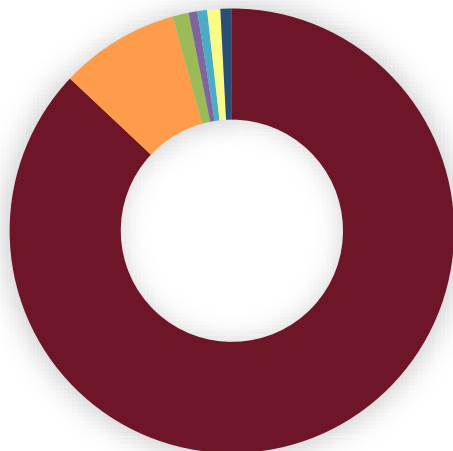
ENVIRONMENTAL RESPONSIBILITY

One of our most
important guiding
principles

Using the sun's energy

Minimal water
use and water
recycling

Closed system
with no runoff into
the environment



Typical Composition

- Mono-Esterified Astaxanthin 87.01%
- Di-Esterified Astaxanthin 8.7%
- Free Astaxanthin 1.16%
- Lutein 0.64%
- Zeaxanthin 0.71%
- Canthaxanthin 0.95%
- Beta-carotene 0.83%

Purest and most concentrated Astaxanthin in the world

OUR PRODUCT

PUREST AND MOST CONCENTRATED ASTAXANTHIN IN THE WORLD

Purest Natural Astaxanthin in the world

- Carotenoid fraction is 97% Pure Astaxanthin
- Other producers generally range from 85% to 95% Pure

Most concentrated Natural Astaxanthin in the world

- 6.0% to over 8.0% concentration in the algae biomass
- Other producers generally range from 2.0% to 5.0%



OUR PRODUCT

CONTAMINANTS FOUND IN OTHER ASTAXANTHIN PRODUCTS

Frequent testing of heavy metals without detectable levels

Pesticide and herbicide screens consistently show no detectable levels

Screen of benzopyrene, PAHs, PCBs and aflatoxins without detectable levels

Solvent-free supercritical CO2 oleoresins



OUR PRODUCT

VITAL CONTAMINANT CONCERN

Glyphosate (RoundUp®) is becoming ubiquitous in many countries in the food chain and in many supplements

Peer-reviewed study: Levels as low as 50 parts per trillion resulted in liver and kidney damage in rodents

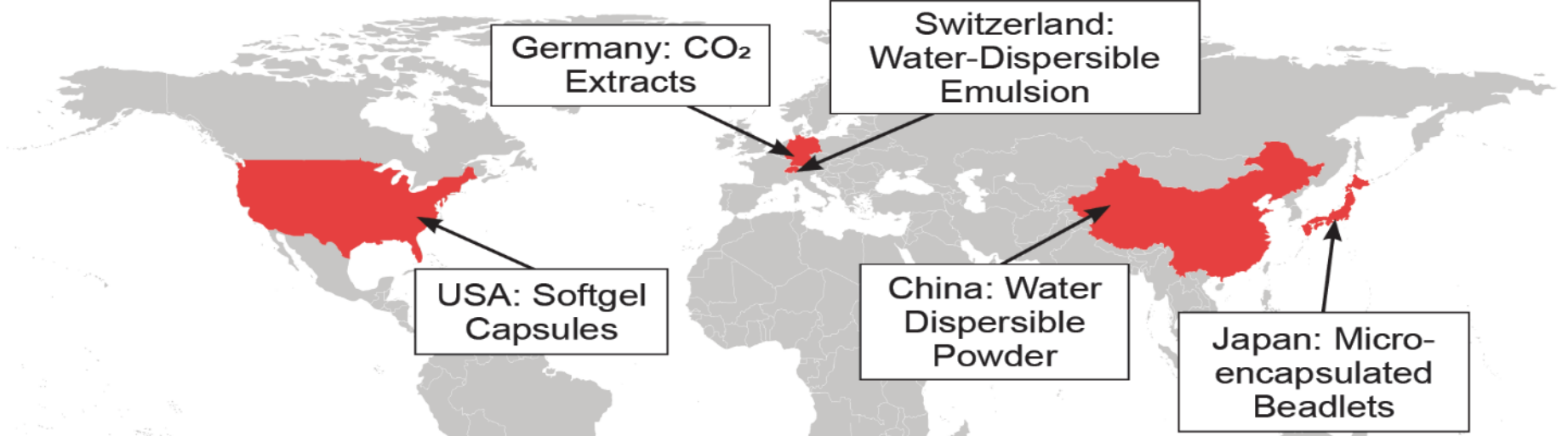
AstaZine® was found free of Glyphosate to detection limits of less than 26 parts per trillion



OUR PRODUCT

LEADING ASTAXANTHIN PRODUCER

- Clinically-validated product: Only three Astaxanthin producers have sponsored clinical research on their product
- Seven years perfecting production techniques and isolating a superior strain of algae before full-scale production
- Best growing system: Closed tube system to prevent contamination
- Cutting-edge technology: Purest; most concentrated; world's first organic Astaxanthin product
- Accurate analytical method and stable raw materials



OUR PRODUCT

GLOBAL SUPPLY CHAIN: SOURCING FROM THE BEST-OF-THE-BEST

Beadlets:
Made in Japan

Water-Dispersible
Emulsion: Made in
Switzerland

Supercritical CO₂
solvent-free oleoresins:
Made in Germany

Softgels:
Made in USA

Water-Dispersible
Powder: Made in China



OUR PRODUCT

WATER DISPERSIBLE ASTAXANTHIN VERSUS LEADING COMPETITOR

AstaZine® water dispersible powder is on the right in each photo

Quick dispersion without stirring

Competitive product doesn't disperse properly even after stirring

Member of
NAXA



OUR PRODUCT

QUALITY: PRODUCED UNDER CGMP ACCORDING TO 21 CFR 111

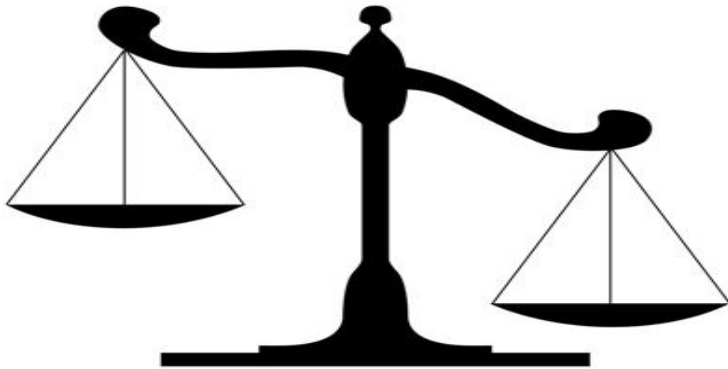
Member of NAXA

ISO 9001-2008
ISO 22000-2005

HACCP

All Natural Process

- Certified Organic Farm
- Vegan
- Allergen and Solvent Free
- Non-Irradiated
- Kosher & Halal
- Non-GMO Project Verified



PRODUCTS FROM NON-NAXA SUPPLIERS

Member of NAXA

Some consumer products
labeled “Natural” are
actually Synthetic
Astaxanthin

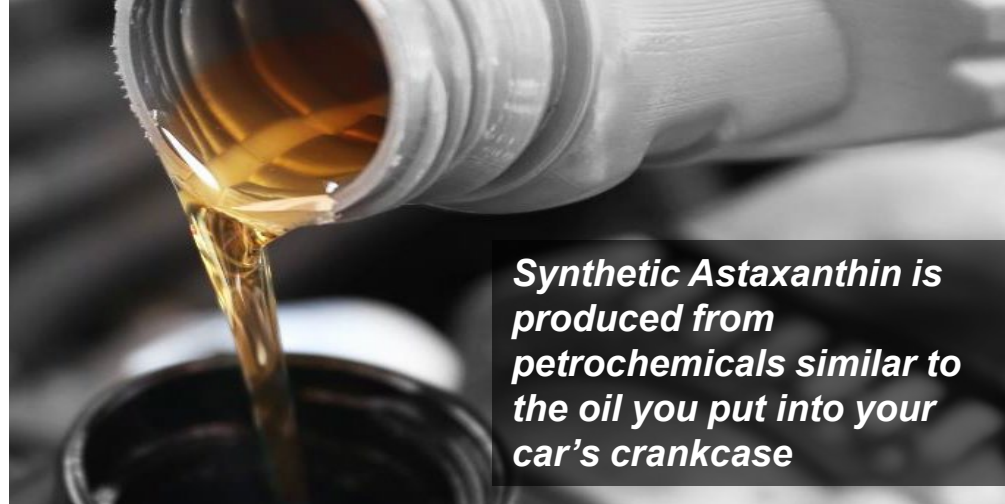
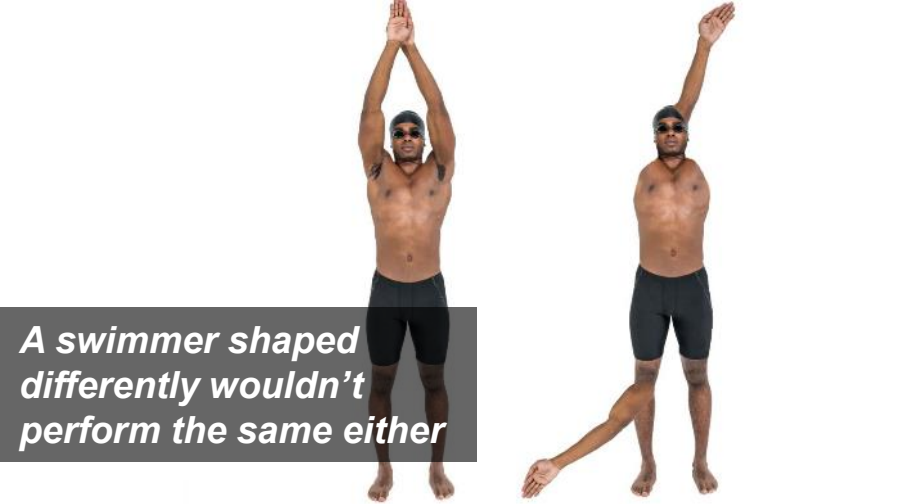
15 commercial products
tested

- Only 3 had the stated level of Astaxanthin present
- 80% were cheating the consumer
- 1/3 of the products tested had less than half of label claim



MAJOR DIFFERENCES FROM SYNTHETIC ASTAXANTHIN

- **Source:** Natural is extracted from algae while Synthetic is synthesized from petrochemicals
- **Strength:** Natural is 20 – 90 times stronger as an antioxidant
- **Animal Trials Prove Superiority:** Six different animal trials prove Natural has superior health benefits
- **Safety:** Natural has an extensive portfolio of human safety studies and over 20 years of commercial use; Synthetic has never been tested for safety in humans
- **Efficacy:** Natural has been clinically validated to have many diverse health benefits in over 100 human clinical trials; Synthetic has never been shown to have any health benefits



SHAPE MATTERS

- Natural and Synthetic Astaxanthin molecules are shaped differently
- Natural is esterified with a fatty acid molecule attached to the end of the molecule while Synthetic is non-esterified
- Natural comes complexed with a small amount of naturally occurring carotenoids while Synthetic does not
- End result: Natural performs far better than Synthetic
- Regulatory Status: Natural is approved by regulators in all major markets and most smaller markets. Synthetic is not approved in many markets (including EU & Japan)



ALGAEHEALTH FIRSTS

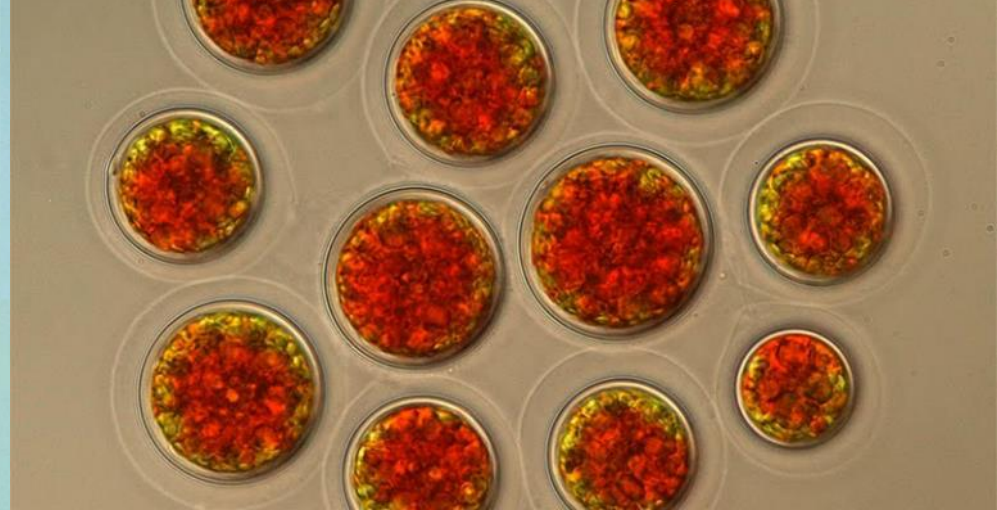
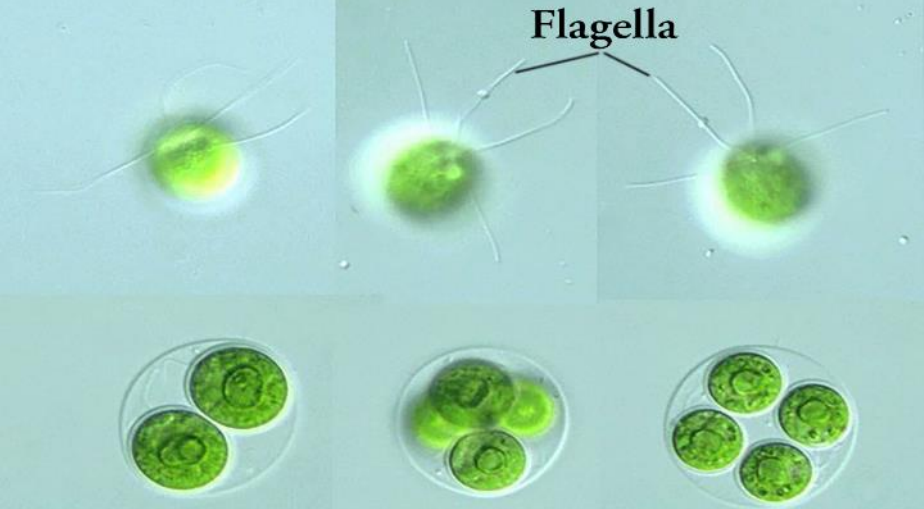
- First Organically Certified Astaxanthin Product
- Only Astaxanthin producer with two Novel Foods approvals in Europe for different Astaxanthin extraction methods
- By far the most Structure Function Claims submitted to US FDA without objection (239)
- Two Astaxanthin use patents pending
- Only US FDA NDI over 12 mg per day dosage
 - 24 mg per day: Recommended for initial 30 days as a “loading phase” and for the 30 days immediately preceding a “big event” for athletes



ALGAEHEALTH DOES NOT COMPETE WITH OUR CUSTOMERS

ASTAXANTHIN PRODUCERS WITH THEIR OWN BRANDS ARE BECOMING PREVALENT

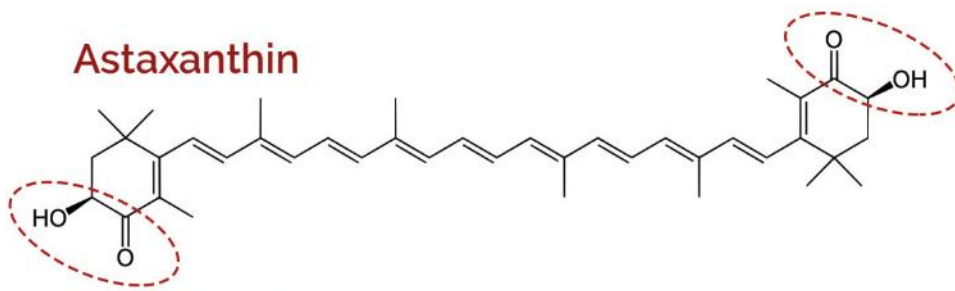
- Out of the top five Astaxanthin producers, four producers own their own consumer brand of Astaxanthin
- They are competing in the retail market with their own customers
- They will always give preference to their own brand over their customers' brands
- AlgaeHealth is the ONLY one of the top five Astaxanthin producers that does not own their own consumer brand



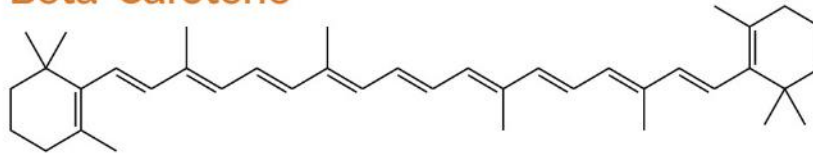
WHAT IS ASTAXANTHIN?

- *Haematococcus pluvialis* algae cells turn from green to red as they accumulate the carotenoid Astaxanthin when subjected to environmental stress
- Astaxanthin serves as a “force field” to protect the algae cells
- Astaxanthin is so protective the cells can live for over 40 years without food or water and in extreme climatic conditions
- When ingested by humans or animals, Astaxanthin gets throughout the entire body and protects our cells just like it protects the algae cells

Astaxanthin



Beta-Carotene



CHEMICAL STRUCTURE

Astaxanthin molecule is different from other carotenoids

Hydroxyl groups on the end of the molecule provide unique benefits



ORIGINALLY USED FOR ANIMAL FEEDS

Cures a life-threatening muscle disease in horses

Increases salmon fry survival rates from 17% to 87% when only 1 ppm is added to salmon feed

83% of shrimp larvae fed Natural Astaxanthin lived to maturity while only 28% fed Synthetic Astaxanthin did

Used for strength and health in sled dogs

- Nestle Purina's top researcher says Astaxanthin caused the most noticeable change he ever saw in over 20 years of testing nutrients in sled dogs



SAFETY OF NATURAL ASTAXANTHIN

In the food chain in salmon, lobster, shrimp, crab and trout plus over 20 years as a dietary supplement

Multiple small mammal studies up to 12,000 to 17,000 mg/kg per day showed no signs of toxicity, cancer formation or birth defects

Chronic and acute safety studies in humans

“THE HEALTHY TEN”

TEN CLINICALLY-VALIDATED BENEFITS OF NATURAL ASTAXANTHIN



Approximately 100 new studies each year over the last three years



Brain Health

- 9 Human Clinical Studies
- 83 Supporting Pre-Clinical Trials



Skin Health & UV Protection

- 12 Human Clinical Studies
- 38 Supporting Pre-Clinical Trials



Immune System Modulation

- 5 Human Clinical Studies
- 28 Supporting Pre-Clinical Trials



Reproductive and Hormonal Health

- 5 Human Clinical Studies
- 23 Supporting Pre-Clinical Trials



Joint, Tendon and Muscle Support

- 10 Human Clinical Studies
- 78 Supporting Pre-Clinical Trials

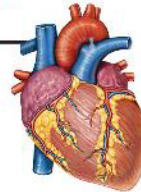
Eye Health

- 15 Human Clinical Studies
- 29 Supporting Pre-Clinical Trials



Cardiovascular Support

- 11 Human Clinical Studies
- 56 Supporting Pre-Clinical Trials



Anti-Aging & Cellular Health

- 62 Human Clinical Studies
- 334 Supporting Pre-Clinical Trials



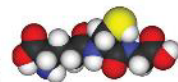
Athletic Performance & Energy Levels

- 18 Human Clinical Studies
- 35 Supporting Pre-Clinical Trials



World's Strongest & Highest Quality Natural Antioxidant

- 13 Human Clinical Studies
- 114 Supporting Pre-Clinical Trials





ASTAZINE® PROPRIETARY RESEARCH

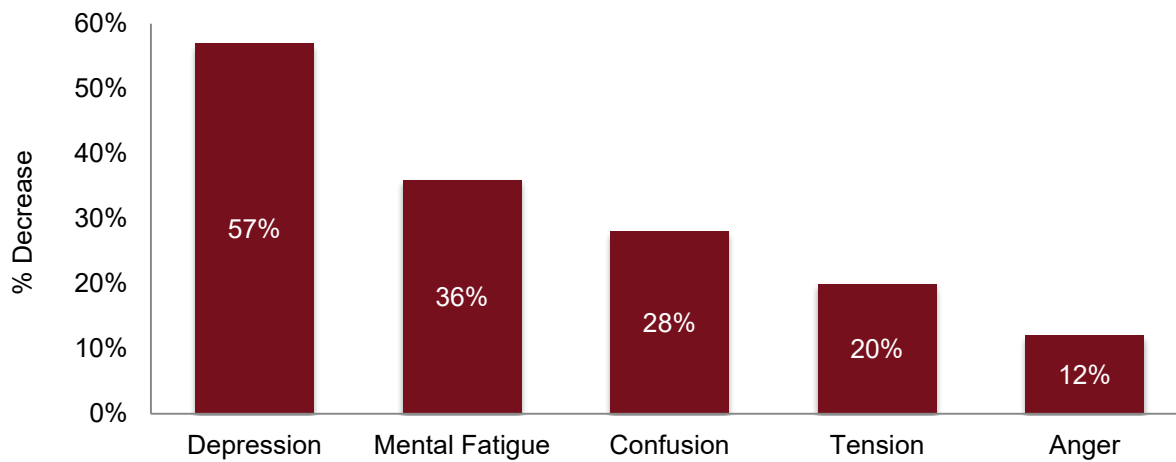
PEER-REVIEWED PUBLICATION, TALBOTT ET AL., 2017

12mg per day
over 60 days

10% decrease in heart rate at
submaximal endurance intensities

- In long distance running (not sprinting), AstaZine® enabled the heart to function well at 10% slower heart beat
- “Cardiotonic Effect”

Patent pending

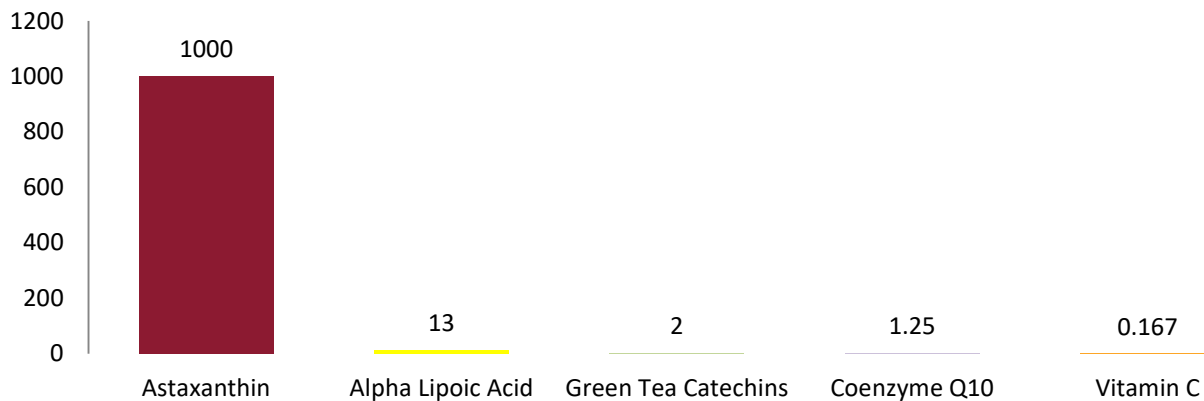


*Negative Mood State
Parameters all Decreased*

ASTAZINE® PROPRIETARY RESEARCH

PEER-REVIEWED PUBLICATION, TALBOTT ET AL., 2019

- Looking at benefits for athletes from a different angle: Mood state
- Athletes supplementing with AstaZine® experienced:
 - 11% better overall mood state
 - 36% less mental fatigue
 - 57% less feelings of depression
 - Statistically significant at $p < 0.05$
- Patent pending

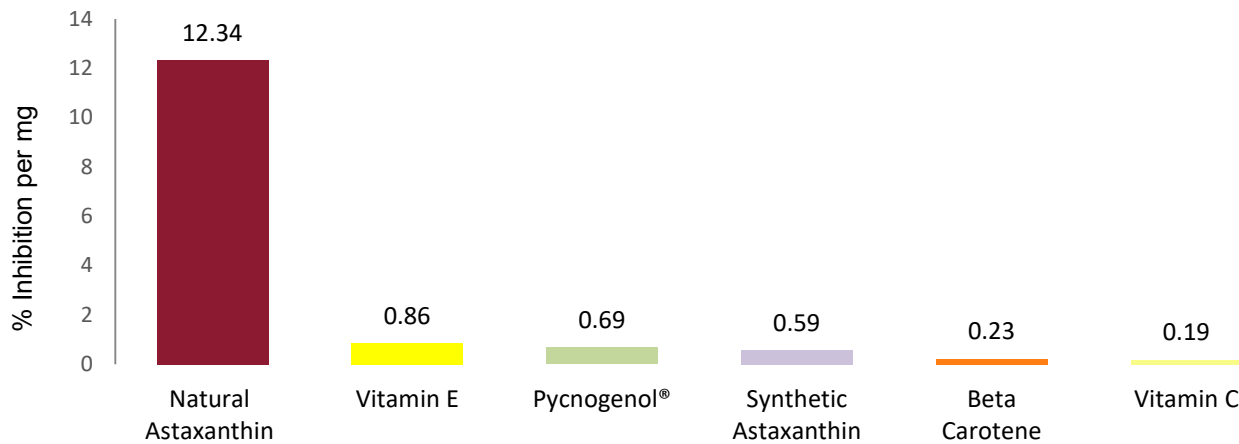


*Relative Singlet Oxygen
Quenching Activity*

WORLD'S STRONGEST NATURAL ANTIOXIDANT

Singlet Oxygen Quenching

- 6000 times stronger than Vitamin C
- 800 times stronger than CoQ10
- 550 times stronger than Green Tea Catechins
- 75 times stronger than Alpha Lipoic Acid



*Oxygen Free Radical
Scavenging*

WORLD'S STRONGEST NATURAL ANTIOXIDANT

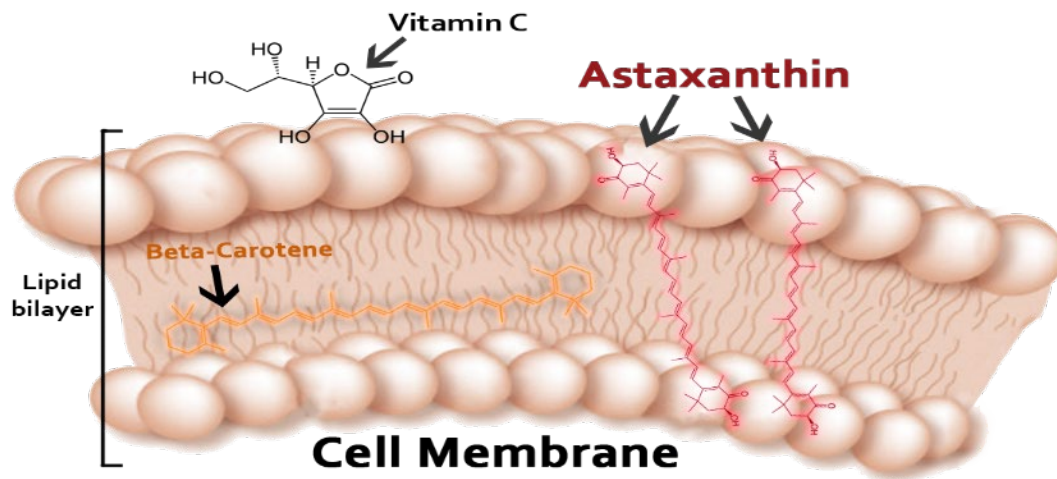
14X – 60X stronger than
other antioxidants in free
radical scavenging

20X stronger than
Synthetic Astaxanthin in
free radical scavenging



WORLD'S HIGHEST QUALITY ANTIOXIDANT

- Oxidation in our bodies is like a car rusting
- We need a high quality antioxidant to prevent our bodies from rusting
- Astaxanthin has six distinct properties that other antioxidants do not possess
 - Some antioxidants may share a few, but no other antioxidant has all six
- Astaxanthin provides a “fresh coat of paint” to protect our bodies

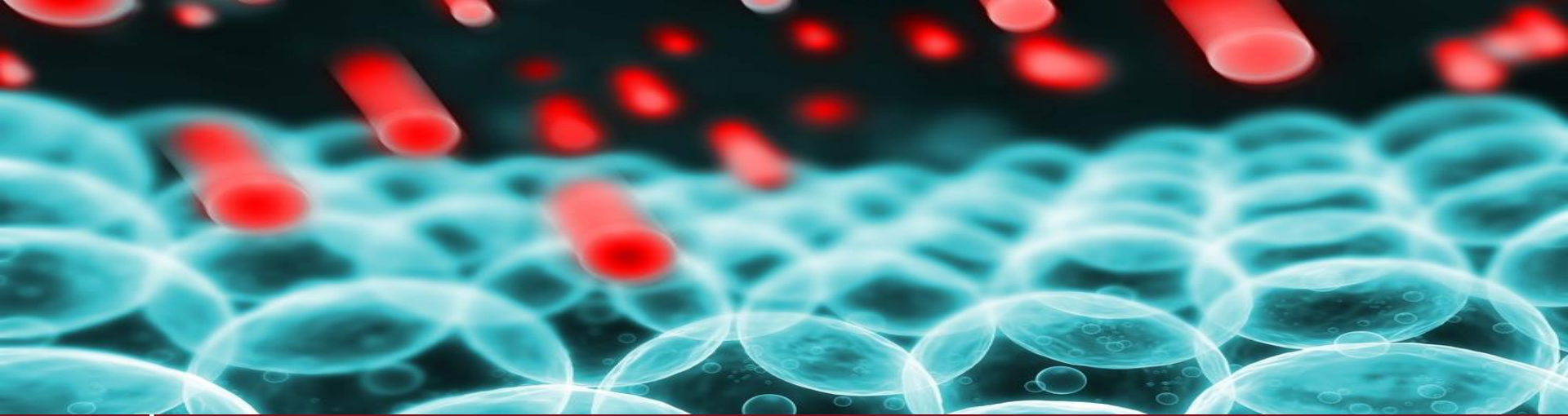


1. WORLD'S HIGHEST QUALITY ANTIOXIDANT SPANS THE CELL MEMBRANE

The Astaxanthin molecule is exceptionally long

It spans the cell membrane to protect the entire cell

Protects both the fat-soluble and water-soluble parts of cells



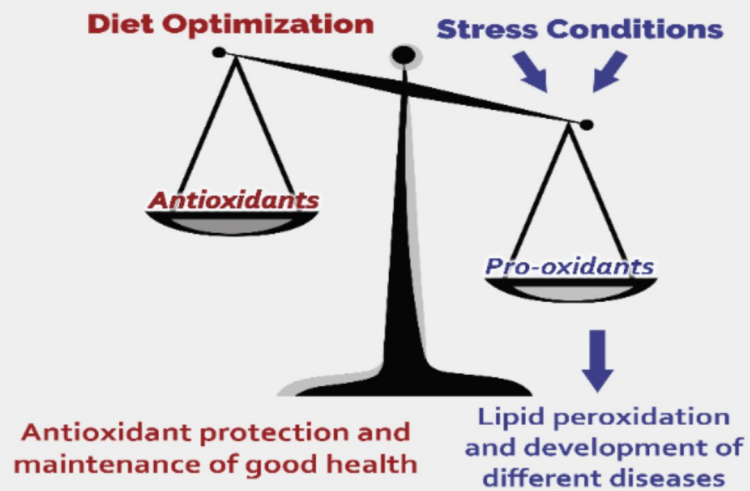
2. WORLD'S HIGHEST QUALITY ANTIOXIDANT

HANDLES MANY FREE RADICALS SIMULTANEOUSLY

Remains active as an antioxidant longer and can handle many free radicals at the same time

Astaxanthin is believed to be able to handle between 13 and 19 free radicals simultaneously

Neutralizes various types of free radicals

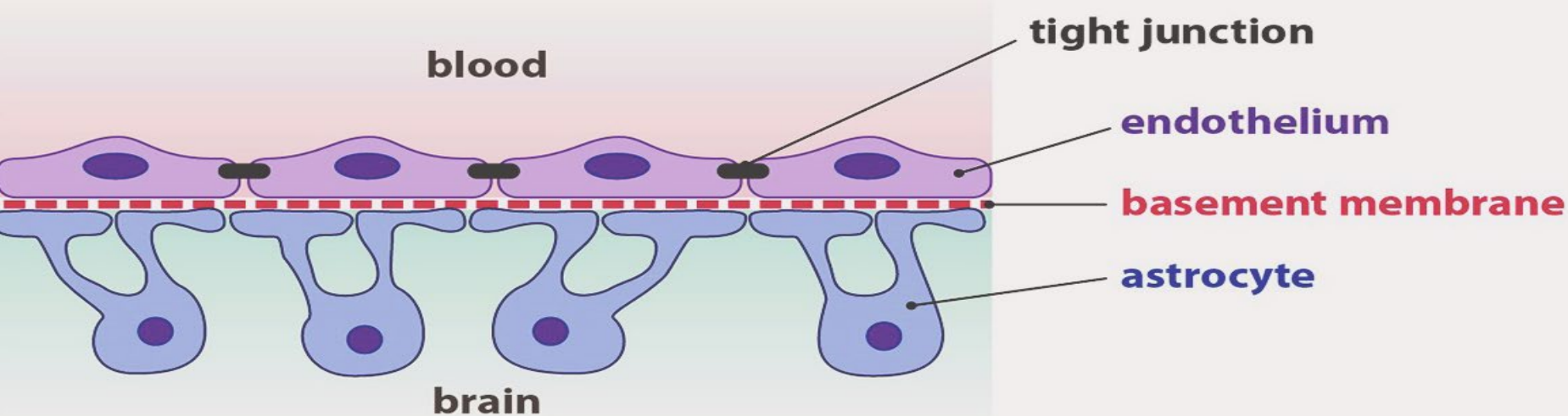


*Antioxidant/Pro-Oxidant
Balance in the Cell*

3. WORLD'S HIGHEST QUALITY ANTIOXIDANT NEVER BECOMES A PRO-OXIDANT

Many good antioxidants
can become Pro-Oxidants
under certain condition
and cause damage to cells

Astaxanthin can
never become a
Pro-Oxidant



4. WORLD'S HIGHEST QUALITY ANTIOXIDANT

CROSSES THE BLOOD-BRAIN AND BLOOD-RETINAL BARRIERS

Astaxanthin crosses the *blood-brain barrier* to bring its profound antioxidant activity and broad-spectrum anti-inflammatory properties to help protect the brain

Once in the brain, Astaxanthin crosses the *blood-retinal barrier* to help protect the eyes



5. WORLD'S HIGHEST QUALITY ANTIOXIDANT

BONDS WITH MUSCLE TISSUE

Astaxanthin can bond with muscle tissue to control oxidation and inflammation

Combats increased oxidation in muscle tissue caused by physical activity



6. WORLD'S HIGHEST QUALITY ANTIOXIDANT

ACCUMULATES IN THE SKIN

Astaxanthin
accumulates
in the skin

Improves skin health
and appearance

Prevents UV damage

Tumor
Necrosis
Factor-A

Prostaglandin
E-2

Interleukin
1-b

Interleukin
6

Nuclear Factor
Kappa-B

Nitric Oxide

Cox 1 enzyme

Cox 2 enzyme

Inflammatory Markers

SAFE & NATURAL ANTI-INFLAMMATORY

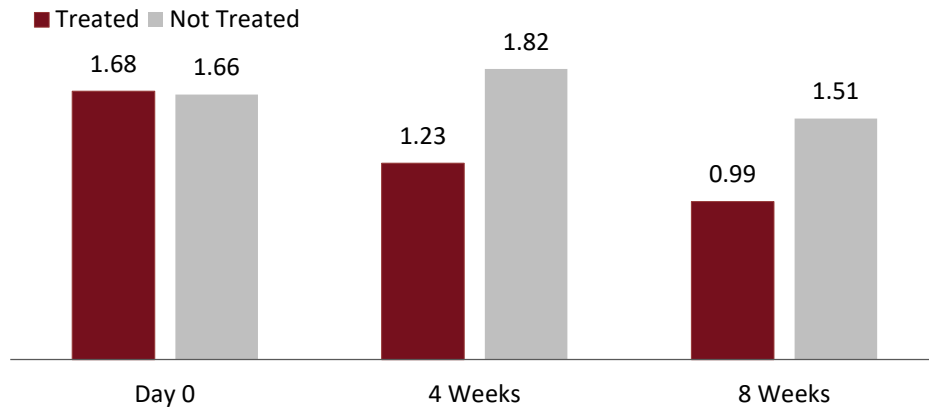
BROAD-SPECTRUM ACTIVITY WITH NO SIDE EFFECTS

Significantly
reduces 8
different
inflammatory
markers

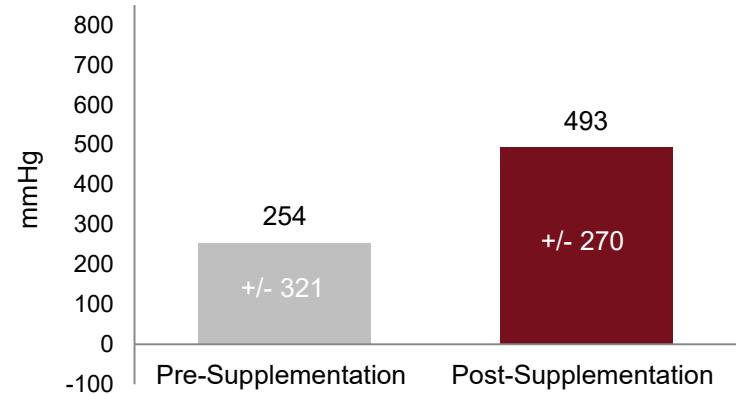
No side effects or
contraindication
but takes 2 – 6
weeks to work

OTC and prescription
anti-inflammatories all
have dangerous side
effects, some that can
kill you

PAIN RATE IN RHEUMATOID ARTHRITIS SUFFERERS



GRIP STRENGTH



SAFE & NATURAL ANTI-INFLAMMATORY

PAIN & MOBILITY

- Clinically validated to reduce pain and increase mobility in people suffering from painful conditions such as rheumatoid arthritis and carpal tunnel syndrome
- Increases grip strength by almost double in people suffering from tennis elbow (tendonitis)
- Prevents joint pain after exercise in healthy subjects



SAFE & NATURAL ANTI-INFLAMMATORY

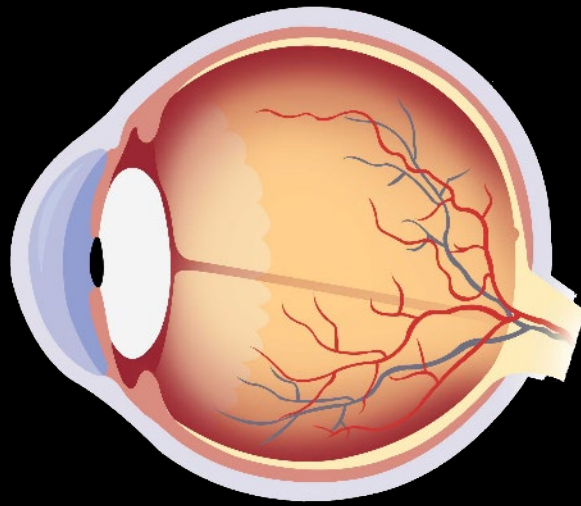
SILENT INFLAMMATION

Reduces C-reactive protein levels, the key marker for deadly systemic (also known as “silent”) inflammation

- 20% reduction in 8 weeks

Silent inflammation is a leading cause of heart disease, cancer, diabetes, Alzheimer’s, Parkinson’s and many other life-threatening maladies

The American Heart Association believes that C-reactive protein is a better predictor of heart disease than cholesterol levels



EYE HEALTH

- Prevents and reduces eye fatigue and eye strain (ten positive human clinical studies)
- Improves visual acuity (the ability to see fine detail)
- Protects the eyes from UV damage
- Improves eye accommodation (depth perception and focus)
- Increases blood flow to the retina
- Age-related macular degeneration (animal studies)



BRAIN HEALTH

- Prevention of dementia
- Improvement of age-related decline in cognitive and psychomotor function
- Decrease in age-related forgetfulness
- Improves mood state
- Latest brain health research: Renowned researcher Paula Bickford, PhD has started animal trials which show neurotoxicity benefits in model for Parkinson's

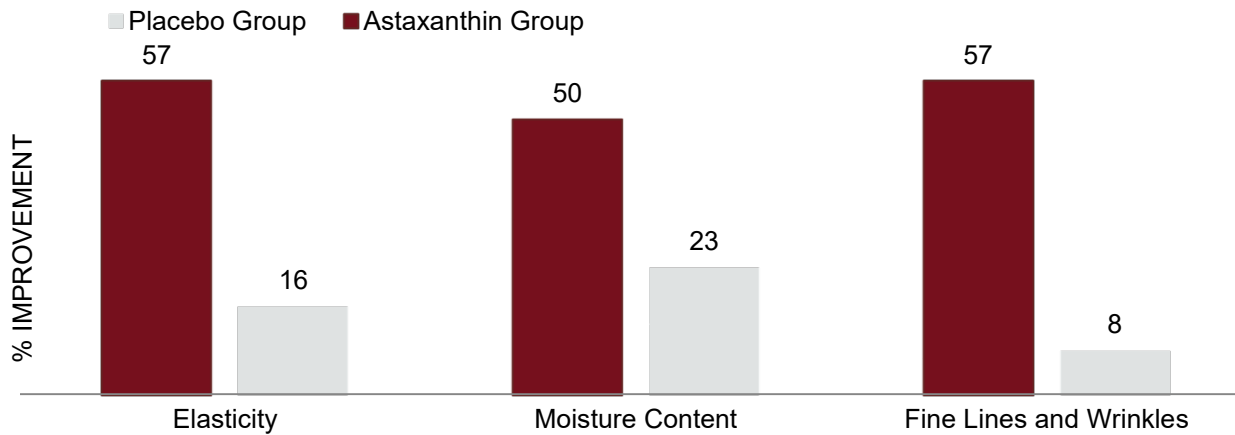


SKIN HEALTH & UV PROTECTION

Prevention of photo-aging

Prevention of UV damage

Prevention of skin cancer (animal studies)



*Assessment of
Beauty Parameters*

“BEAUTY FROM WITHIN” LANDMARK CLINICAL TRIAL

- 4 mg per day
- Fights wrinkles
- Increases skin moisture levels
- Improves skin elasticity
- Reduces visible signs of UV-aging within 4-6 weeks of use
- Helps maintain a youthful appearance



TOPICAL BENEFITS OF ASTAXANTHIN

HUMAN AND ANIMAL STUDIES

Wrinkle reduction

Protection from
sun damage

Reduction in premature
signs of aging

Treatment of
allergic skin
conditions



NATURE'S AQUATIC MARATHON

The highest concentration of Astaxanthin in animals is in salmon where it concentrates in their muscles

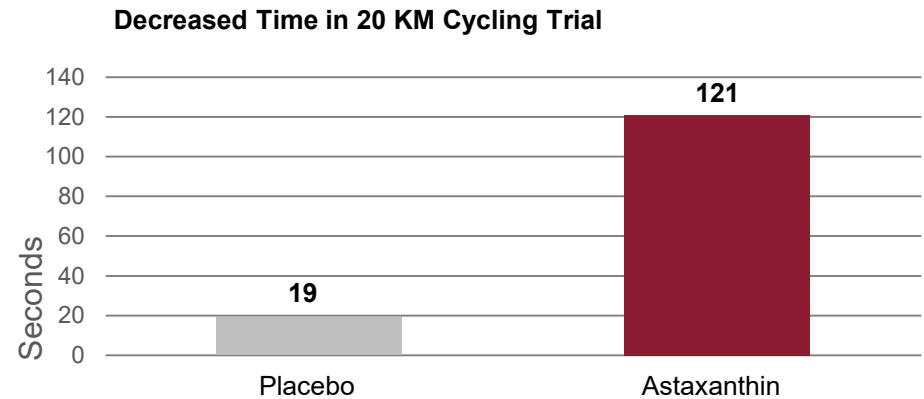
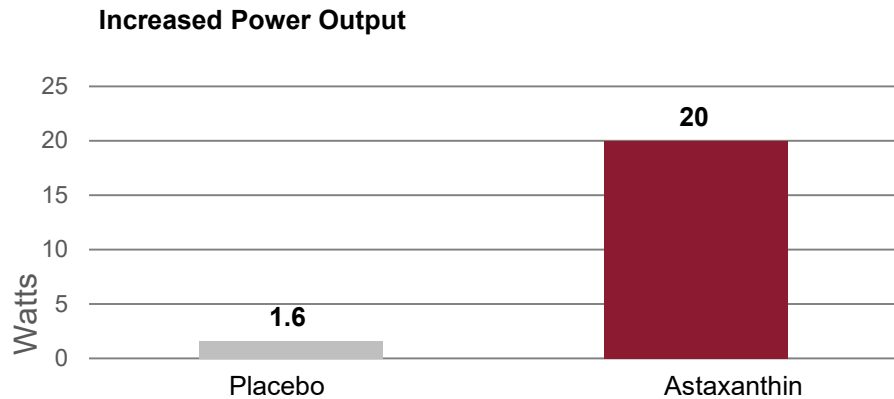
Astaxanthin gives salmon the strength and energy to perform nature's greatest endurance feat—swimming up raging rivers for weeks



THE ATHLETE'S DOZEN

THE 12 CLINICALLY-VALIDATED BENEFITS FOR ATHLETES

- 1) Strength
- 2) Endurance
- 3) Recovery
- 4) Performance
- 5) Muscle Damage
- 6) Heart Rate
- 7) Mental Fatigue
- 8) Physical Fatigue
- 9) Energy Metabolism
- 10) Lactic Acid Levels
- 11) Joint & Muscle Soreness
- 12) Mood State



STUDY SPONSORED BY GATORADE® IN COMPETITIVE CYCLISTS

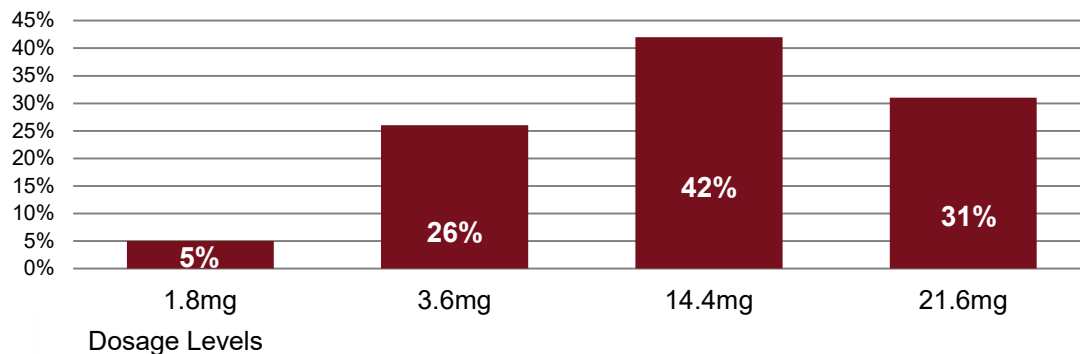
4mg per day over
four weeks

20 km time trial

Made the cyclists
5% faster

Increased power
output by 15%

% Increase in Oxidation Lag Time



*Delay in Oxidation
of LDL Cholesterol*

CARDIOVASCULAR HEALTH

Improves blood
lipid levels

Prevents lipid
peroxidation

Decreases systolic
and diastolic blood
pressure by 5% to 7%

Reduces heart
rate by 10%
during exercise

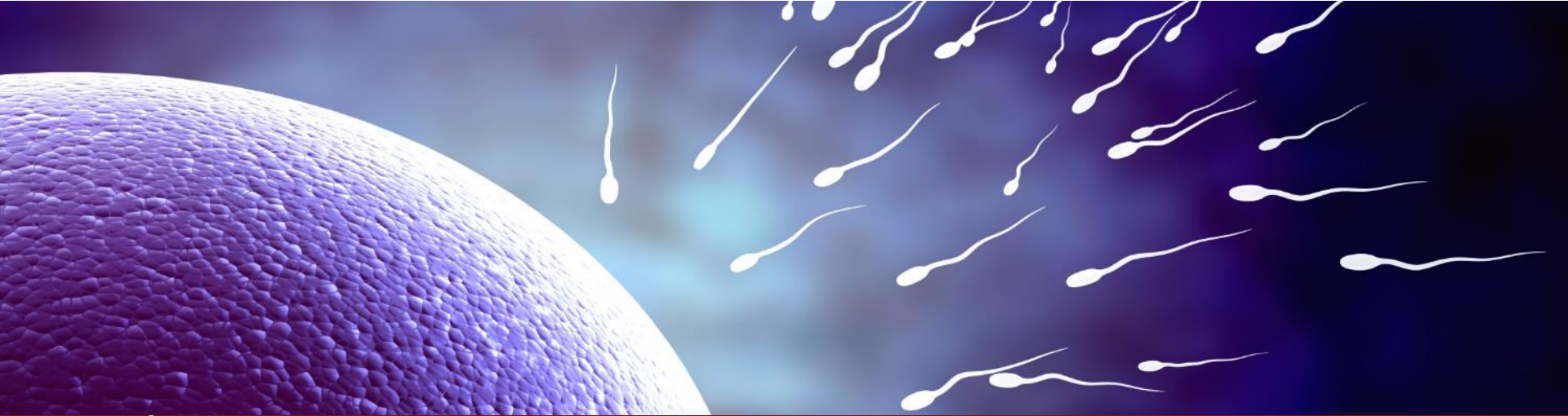
Improves blood flow



IMMUNE MODULATION

LANDMARK WASHINGTON STATE UNIVERSITY SERIES OF STUDIES

- In-vitro, rodent, cat, dog and human clinical studies
- Human study: 0mg, 2mg and 8mg per day over eight weeks
 - Improvement in several immune markers
 - Decrease in DNA damage by 40%
 - Reduction in CRP levels and oxidative stress
 - “Astaxanthin is a strong immune system stimulator”



MALE FERTILITY

Clinical trial done at
16mg per day over
three months

Increased sperm
velocity and
reduced reactive
oxygen species in
sperm

Over 50% of couples with
the male diagnosed with
poor semen quality had a
baby!



ANTI-AGING & CELLULAR HEALTH

- Clinically validated benefits for most of the key concerns with aging
- AstaZine® study in *C. elegans* (a worm that serves as a model organism for longevity testing in mammals) showed AstaZine® group lived 10% longer on average with a 17% maximum increase in survival
- ***The Ultimate Anti-Aging Nutrient***



EMERGING RESEARCH

PRE-CLINICAL STUDIES IN ANIMALS AND IN-VITRO

● Cancer Prevention and Tumor Reduction	63 studies
● Liver & Kidney Health	50 studies
● Support for Diabetes	32 studies
● Gastrointestinal Health	19 studies
● Respiratory Health	7 studies



ASTAZINE® PRODUCT FORMATS

- Certified Organic 2.5% free-flowing powder, 5% powder and 10% oleoresin
- Supercritical CO2 solvent-free extraction and ethanol extraction
 - 5%, 10% and 20% oleoresin
- 2.0% and 2.5% beadlets
- 2.0% water-dispersible powder and 1.0% water-dispersible emulsion
- 4mg, 6mg, 8mg, 12mg bovine gelcaps and vegetarian gelcaps (available in select markets)
- Private label bottles “Made in USA” (available in select markets)



& Highest Quality Natural Antioxidant

Clinical Trial Results

- Reduces various oxidative stress markers
- Prevents oxidative damage
- Prevents peroxidation of blood lipids including LDL cholesterol
- Prevents depletion of non-enzymatic antioxidant defense
- Dosage range 2mg to 4mg per day



In-Vitro Research Results

- Multiple times stronger than all other antioxidants tested in various head-to-head antioxidant experiments regardless of testing method
- Generally at least 30X stronger than all other carotenoids
- 800X stronger than CoQ10
- 550X stronger than Vitamin E
- 6000X stronger than Vitamin C



RECOMMENDED DOSAGES

● Antioxidant	2 – 4 mg per day	● Joint, Tendon & Muscle	4 – 12 mg per day
● Immunity	2 – 4 mg per day	● Cardiovascular Health	4 – 18 mg per day
● Skin Health	4 – 6 mg per day	● Brain Health	6 – 12 mg per day
● Eye Health	4 – 8 mg per day	● Male Fertility	16 mg per day
● Athletes & Energy	4 – 12 mg per day	● Topical Applications	20 – 50 ppm
● Anti-Aging	4 – 12 mg per day		



U.S. FOOD & DRUG ADMINISTRATION

STRUCTURE FUNCTION CLAIMS

- 239 different health claims submitted to US FDA without objection
- By far the most of any Astaxanthin supplier
 - The ultimate nutrient to support the brain and eyes
 - Helps maintain beautiful, younger looking skin
 - Promotes healthy joints, tendons and synovial fluids
 - Helps support cardiovascular function and a healthy circulatory system
 - Promotes improved performance in athletes
 - Nutritional support in the battle against aging





REPEAT BUSINESS

“THE SUPPLEMENT YOU CAN FEEL”

80% of people
can feel or
see it working

Great repeat business

Dr. Mercola on the
Dr. Oz show: “The
#1 Supplement You
Should Be Taking”



MARKETING ASSISTANCE

ALGAEHEALTH PROVIDES UNPARALLELED SUPPORT FOR OUR CUSTOMERS

White Papers

Abstract Lists

Astaxanthin Book

Marketing
Consultation
and Guidance



THANK YOU FOR YOUR ATTENTION

For questions or more information please contact us at
algaehealthsciences.com or bggworld.com

These statements have not been evaluated by the Food and Drug Administration.

This product is not intended to diagnose, treat, cure, or prevent any disease. Please note that the physiological activity of the ingredient described herein is supported by the referenced clinical trial reports. Marketers of finished products containing the ingredient described herein are responsible for determining whether the claims made for such products are lawful and in compliance with the laws of the country in which they will market the products.