



Opti Ova[®]

Female Wellness Kit

- Provides comprehensive nutritional support, with therapeutic dosages, for diverse factors affecting reproductive health
- Broad-spectrum antioxidants reduce oxidative stress and damage, and enhance mitochondrial function, key determinants of oocyte function and quality
- Provides the most bioavailable forms of nutrients, including pyridoxal 5'-phosphate, *d*-alpha tocopheryl, vitamin D3, methylcobalamin, and (6S)-5-methyltetrahydrofolic acid
- Supports proper endometrial blood flow, supplying nutrients, removing toxins and reactive oxygen species (ROS) from the endometrium, and encouraging proper implantation

Code: 9810 **Size:** 60 Packets
NPN: 80093441



PRODUCT SUMMARY

Opti Ova is a comprehensive female reproductive support kit that provides an effective combination of key antioxidants, omega-3 fatty acids, vitamins, and minerals shown to improve egg quality and enhance fertility. By optimizing mitochondrial function, reducing oxidative stress, supporting blood flow to the endometrium and its development, and enhancing detoxification pathways, Opti Ova provides a broad base of nutritional support for reproductive health.

Mitochondrial activity is a key factor in oocyte function and quality, with mitochondrial dysfunction recognized as a major cause of age-induced decline in oocyte quality.^{1,2} Key nutrients, including PQQ, resveratrol, and CoQ10, have been shown to induce mitochondrial biogenesis,³ counteract ovarian aging,^{4,5} and when combined with clomiphene citrate, CoQ10 supplementation resulted in a more than 6-fold increase in the clinical pregnancy rate than clomiphene alone, in a randomized prospective trial of participants with PCOS.⁶

N-acetylcysteine provides the limiting factor for glutathione production, essential for detoxification of many pollutants which interfere with reproductive function; it has also been shown to improve pregnancy rates and endometrial thickness when compared to standard treatments for PCOS, such as clomiphene and metformin.⁷ L-carnitine, Japanese knotweed, and magnesium also benefit women with PCOS.⁸

Opti Ova includes vitamins D and E, omega-3 fatty acids, key minerals, and bioavailable B vitamins which act as potent antioxidants and support optimal endometrial health and implantation.⁹⁻¹² Vitamin E supplementation alone has been shown to shorten the time to pregnancy among women older than 35 seeking treatment for unexplained infertility, while vitamin D has been linked to implantation rates and IVF outcomes, with the highest levels linked to the highest pregnancy rates.¹³⁻¹⁶



Serving Size: 1 Packet
Servings per Container: 60

Each Packet Contains One of Each of the Following Supplements: BioPQQ®; N-Acetyl-L-Cysteine and Alpha-Lipoic Acid; B Complex-Pro; L-Carnitine; Resveratrol with Grape Seed Extract; Vitamin E 400 with Selenium; Magnesium Bisglycinate; OptiMega-3® with Vitamin D3.

Recommended Adult Dose: 1 packet per day with food or as directed by a health care practitioner. **Source of Antioxidants:** Consult a health care practitioner for use beyond 3 months.

Recommended Use: Source of vitamins and minerals that factor in the maintenance of good health, in normal growth and development, liver function, and normal function of the immune system. Supports energy metabolism, connective tissue formation, and the development and maintenance of bones, cartilage, teeth, and gums. Helps maintain and support cardiovascular health. Helps reduce the risk of neural tube defects when taken daily at least three months prior to becoming pregnant and during early pregnancy. Helps support normal early fetal development (brain and spinal cord). Provides antioxidants that help protect against oxidative stress.

BioPQQ®

Each Softgel Contains:

Coenzyme Q10 (Microorganism) (whole cell)200 mg
BioPQQ® Pyrroloquinoline Quinone (Disodium Salt)17.65 mg
SUN-E 900™ Vitamin E (*d*-Alpha Tocopherol)
(*Helianthus annuus*) (seed) 5 IU (3.35 mg AT*)
*Alpha Tocopherol

Non-medicinal Ingredients: Softgel (gelatin, glycerin, purified water, carob powder), organic flaxseed oil, yellow beeswax, non-GMO sunflower oil, lecithin.

N-Acetyl-L-Cysteine and Alpha-Lipoic Acid

Each Tablet Contains:

NAC (N-Acetyl-L-Cysteine)250 mg
Alpha-Lipoic Acid300 mg

Non-medicinal Ingredients: Microcrystalline cellulose, dibasic calcium phosphate dihydrate, stearic acid, vegetable grade magnesium stearate (lubricant), clear coating (carbohydrate gum [cellulose], glycerin), silica, croscarmellose sodium.

B Complex-Pro

Each Capsule Contains:

Vitamin B1 (Thiamine Hydrochloride, Benfotiamine).....31.7 mg
Vitamin B2 (Riboflavin 5'-Phosphate Sodium) 10 mg
Niacin (Inositol Hexanicotinate)..... 100 mg
Vitamin B5 (Calcium *d*-Pantothenate)..... 100 mg
Vitamin B6 (Pyridoxal 5'-Phosphate Monohydrate).....25 mg
Vitamin B12 (Methylcobalamin)500 mcg
Folate (from (6S)-5-Methyltetrahydrofolic Acid (MTHF),
Glucosamine Salt, Quatrefolic®) 400 mcg
Biotin250 mcg
Choline Dihydrogen Citrate50 mg
Inositol (Inositol Hexanicotinate)50 mg

Non-medicinal Ingredients: Vegetarian capsule (carbohydrate gum [cellulose], purified water), microcrystalline cellulose, vegetable grade magnesium stearate (lubricant), silica, organic kale, organic alfalfa, organic cilantro leaf, organic parsley, caperberry, sprouted garlic, organic artichoke, organic black radish, organic dandelion, barley grass, pepper, organic celery seed, organic beetroot, organic tomato, wasabi rhizome, fresh freeze-dried sprouted broccoli, organic upland cress, daikon, red radish, organic cauliflower, organic cabbage, organic arugula, organic watercress leaf, grape, pomegranate, strawberry, organic cranberry, organic blueberry, raspberry, bilberry, organic Indian gooseberry, schizandra berry, red orange, organic açai berry, Theracurmin® curcumin, organic decaffeinated green tea extract, organic ginger rhizome, organic echinacea, organic oregano, organic peppermint, organic spearmint, organic spirulina, organic chlorella, red algae, blue green algae, kelp.

L-Carnitine

Each Capsule Contains:

L-Carnitine (Tartrate)500 mg

Non-medicinal Ingredients: Vegetarian capsule (carbohydrate gum [cellulose], purified water), silica, microcrystalline cellulose, vegetable grade magnesium stearate (lubricant).

Resveratrol with Grape Seed Extract

Each Capsule Contains:

Japanese Knotweed Extract (*Fallopia japonica*) (root)
(20% Trans-Resveratrol)200 mg
Grape Seed Extract (*Vitis vinifera*) (seed)
(80% Oligomeric Proanthocyanidins).....25 mg

Non-medicinal Ingredients: Gelatin capsule (gelatin, purified water), microcrystalline cellulose, vegetable grade magnesium stearate (lubricant), silica.



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Bioclinic Naturals® products are guaranteed to meet or exceed Good Manufacturing Practices (GMP) of the U.S. Food and Drug Administration (FDA), Health Canada, and the Therapeutic Goods Administration (TGA) of Australia.



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OPTI OVA® FEMALE WELLNESS KIT

Vitamin E 400 with Selenium

Each Tablet Contains:

Vitamin E (*d*-Alpha Tocopheryl Acid Succinate) 400 IU (268 mg AT*)
Selenium (Yeast) 100 mcg
Vitamin C (Ascorbic Acid)..... 100 mg
Manganese (Gluconate)..... 10 mg
*Alpha Tocopherol

Non-medicinal Ingredients: Dibasic calcium phosphate dihydrate, microcrystalline cellulose, silica, croscarmellose sodium, vegetable grade magnesium stearate (lubricant), coating (carbohydrate gum [cellulose], glycerin).

Magnesium Bisglycinate

Each Capsule Contains:

Magnesium (Bisglycinate) 200 mg

Non-medicinal Ingredients: Vegetarian capsule (carbohydrate gum [cellulose], purified water), microcrystalline cellulose, vegetable grade magnesium stearate (lubricant), silica.

OptiMega3® with Vitamin D3

Each Enteripure® Softgel Contains:

Fish Oil Concentrate (Anchovy, Sardine, and/or Mackerel)..... 1425 mg
Omega-3 Fatty Acids..... 900 mg
Eicosapentaenoic Acid (EPA) 600 mg
Docosahexaenoic Acid (DHA) 300 mg
Vitamin D3 (Cholecalciferol)..... 1000 IU (25 mcg)

Non-medicinal Ingredients: Enteric softgel (gelatin, glycerin, purified water, pectin), natural vitamin E.

Caution: Consult a health care practitioner prior to use if you are pregnant, breastfeeding, have kidney stones, diabetes, a liver disease, a kidney disease, a seizure disorder, cancer, cardiovascular disease, a history of non-melanoma skin cancer, gallstones, gallbladder disease, lupus, a progressive systemic disease such as tuberculosis, collagenosis, multiple sclerosis, AIDS and/or HIV infection or an auto-immune disorder, or if you are taking blood pressure medication, blood thinners, or protease inhibiting drugs. Do not use this product if you are taking antibiotics or nitroglycerin. If you experience sweating, paleness, chills, headache, dizziness, and/or confusion, discontinue use and consult a health care practitioner (as these may be symptoms of serious low blood sugar). Consult a health care practitioner prior to use if you are taking prescription medications as resveratrol may alter the effectiveness of these medications. Keep out of reach of children.

Contains no artificial colours, preservatives, or sweeteners; no dairy, starch, sugar, wheat, gluten, yeast, soy, corn, egg, fish, shellfish, animal products, salt, tree nuts, or GMOs.

Do not use if seal is broken. Each packet is sealed for your protection. For freshness, store in a cool, dry place.

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Several lifestyle factors affect fertility:

- Smoking causes a 60% increase in relative risk for infertility. Cigarette smoke contains chemicals associated with decreased numbers of oocytes, rates of fertilization, and pregnancy.
- Obesity (BMI >35) increase time to conception (TTC) 2 fold
- Alcohol use (>2 drinks per day) causes a 60% increase in relative risk for infertility
- Caffeine (>250mg/d) associated with 45% decrease in fecundability
- Toxic solvents associated with increased risk of infertility 40%

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Opti Ova™ Female Wellness Kit





Opti Ova™ Female Wellness Kit

Benefits:

- Provides comprehensive nutritional support with therapeutic dosages
- Bioavailable forms of nutrients, including pyridoxal 5-phosphate, methylcobalamin and MTHF
- Enhances detoxification associated with common infertility issues; poor egg quality and diseases
- Broad spectrum antioxidants reduce oxidative stress and damage, enhance energy production, reduce the effect of aging and oxidative stress
- Supports proper blood flow, supplying nutrients, removing toxins and reactive oxygen species (ROS) from the endometrium encouraging proper implantation

During the past decade the number of women trying to conceive has continued to rise, with a 36% increase of first births for ages between 35 and 39, and a 70% increase between the ages of 40 to 44. Research shows that high oxidative stress and reactive oxygen species (ROS) in the egg diminishes the function of the mitochondria and reduces energy production, substantially contributing to infertility.

Over time, extended exposure to oxidative stress, nutritional deficiencies, genetic variations, and oxidative stress hinders egg quality, mitochondrial function, and the chances of fertility. Toxicant accumulation compromises both sperm and oocyte quality, ultimately affecting fertility. Despite best efforts, IVF technologies fail to reverse the effects of aging or improve gamete quality.

Opti Ova is a comprehensive female reproductive support kit that provides an effective combination of antioxidants, essential fatty acids, vitamins, and minerals proven to improve egg quality and enhance fertility. Opti Ova restores the function of the mitochondria (energy production) and reduces the effects of aging, providing nutrients for proper egg function, cell growth and signalling, and DNA repair.

Mitochondria are essential cell structures responsible for energy production. One single egg contains

approximately 200,000 mitochondria, a 100-fold increase compared to all other cells in the body, which the egg relies heavily on for final egg maturation and embryo development. L-carnitine, omega-3 fatty acids, and an advanced bioavailable B complex have been shown to improve egg quality, maturation and embryo development. Potent antioxidants that target mitochondria directly, such as Coenzyme Q10, Pyrroloquinoline quinone (PQQ), alpha lipoic acid, manganese, and grape seed extract further reduce oxidative stress in the egg to further enhance mitochondrial function.

To improve blood flow and implantation success, Opti Ova includes vitamin E, NAC, and resveratrol, to act as antioxidants as well as improve nitric oxide synthase (NOS3) function. NOS3 is the enzyme necessary for nitric oxide production and proper blood flow to the uterus. This primes the endometrium for implantation and maintaining pregnancy.

Opti Ova enhances natural detoxification pathways to protect immature eggs and the reproductive tract from harmful toxins with N-acetylcysteine, the precursor to glutathione. B vitamins and resveratrol are shown to protect endometrial cells, improve ovulation, and increase pregnancy rate.





Fertility Support

for Men and Women

Fertility Factors in Women

Research shows that high oxidative stress and reactive oxygen species (ROS) in the egg diminishes the function of the mitochondria and reduces energy production, substantially contributing to infertility. Over time, extended exposure to oxidative stress, nutritional deficiencies, genetic variations, and oxidative stress hinders egg quality, mitochondrial function, and the chances of fertility.

Fertility Factors in Men

Male factor fertility accounts for 50% of documented cases of infertility in North America. The most commonly diagnosed conditions are low sperm count and low motility. The leading cause of sperm dysfunction is oxidative stress, the imbalance between the body's natural antioxidants and high levels of reactive oxygen species (ROS). High levels of ROS are seen in 40% of men with infertility, affecting sperm count, motility, and structure. Research shows supplementing with antioxidants is an effective strategy, reducing oxidative stress and restoring sperm quality.

Nutrient support and delivery is essential to both egg quality as well as sperm quality and concentration.

Promote Positive Results with Fertility Support from Bioclinic

Bioclinic provides nutritional support for both women and men with comprehensive formulas containing therapeutic dosages designed to:

- Support egg quality and implantation in women.
- Support sperm development, motility and count in men.

We are a proudly Canadian nutraceutical manufacturer. Our unique formulas meet practitioners' needs for both condition-specific challenges and overall health enhancement. Our continual commitment to product quality in every stage of production for every product ensures that our products have earned the trust of practitioners and their patients.



Support Male & Female Reproductive Health

Optimize Sperm Count & Motility

Support Healthy Growth and Development

Optimize Mitochondrial Function



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natural solutions + clinical results

For Women

PCOS Care™

Hormone and Fertility Support

- Provides two complementary forms of inositol at the recommended 40:1 ratio of myo-inositol to D-chiro-inositol, consistent with tissue-specific levels of these intracellular signaling molecules.
- Contains naturally occurring forms of inositol, clinically shown to have complementary effects on both metabolic and ovarian function among women with PCOS.
- Includes methylcobalamin and activated folate (L-5-MTHF) for optimal fertility and pregnancy outcomes.

PreFoundation™

Prenatal Multiple Vitamin and Mineral Formula for Women

- Provides highly bioavailable forms and clinical doses of vitamins and minerals critical for optimal prenatal health and fetal development.
- Contains vitamins D3, K2 (Mk-7) and methylated B vitamins, including L-5-MTHF, key prenatal vitamins shown to be superior to forms typically used in prenatal supplements.
- Provides 45mg of iron bisglycinate per daily dose, which offers optimal iron absorption without the typical gastrointestinal side effects.



For Women

Opti Ova™

Female Wellness Kit

- Provides comprehensive nutritional support with therapeutic dosages for diverse factors affecting reproductive health.
- Broad spectrum antioxidants reduce oxidative stress and damage. Mitochondrial function, a key determinant of oocyte function and quality, is enhanced.
- Supports proper endometrial blood flow, supplying nutrients, removing toxins and reactive oxygen species (ROS) from the endometrium. This is needed to encourage proper implantation.

For Men

Mito Motile™

Male Wellness Kit

- Comprehensive blend of nutrients to support mitochondrial function in sperm, shown to optimize sperm maturation, count, and motility.
- Contains multiple mitochondrial optimizers, including L-carnitine, PQQ-10 and CoQ10, shown to increase pregnancy rates and various parameters of sperm function.
- Supports glutathione production, essential for detoxification of many toxins frequently associated with impaired fertility.



General Support

PQQ-10®

Mitochondrial Support

- PQQ has been shown to attenuate mitochondrial oxidative stress as well as to stimulate mitochondrial biogenesis– spontaneous generation of new mitochondria within aging cells.
- PQQ and CoQ10 are synergistic nutrients which modulate cellular signalling pathways, neutralize reactive oxygen species and support optimal mitochondrial function. The combination can improve egg quality and reverse cellular aging.

Melatonin 3 mg or 5 mg (time release)

Antioxidant Support

- Melatonin enhances the activity of other endogenous antioxidants, including glutathione peroxidase and superoxide dismutase.
- Clinical studies also suggest that melatonin supplementation in IVF may lead to better pregnancy rates by achieving higher rate of mature oocytes and quality embryos.
- Observational studies suggest lack of melatonin plays a key role in underlining causes for infertility such as diabetes, endometriosis, menstrual cycle irregularity and dysmenorrhoea.

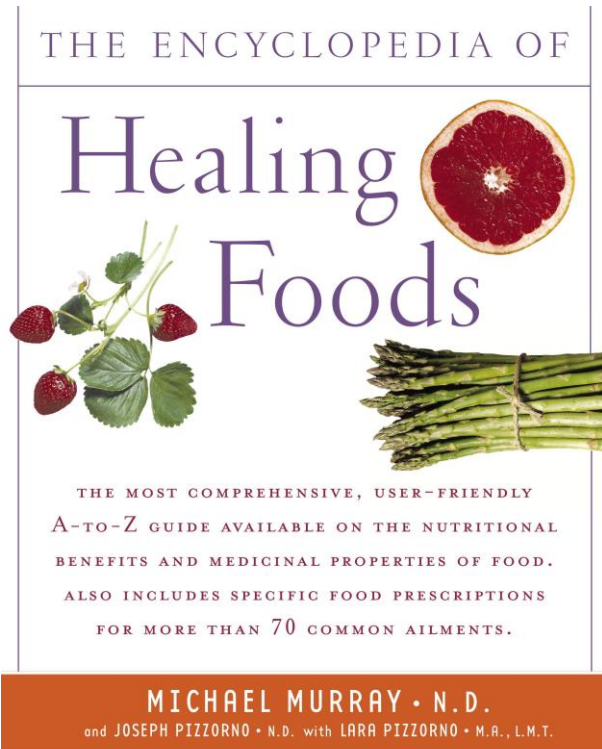




Provocative Concepts in Nutrition and Fertility

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WHAT THE DRUG COMPANIES WON'T TELL YOU AND YOUR DOCTOR DOESN'T KNOW

THE TRUTH ABOUT THE BENEFITS AND DANGERS OF PRESCRIPTION MEDICINES AND THEIR ALTERNATIVES



MICHAEL T. MURRAY, N.D.



Agenda

- Today's goal
- Emerging concepts:
 - Epigenetics, biochemical individuality, and metabolic imprinting
- What is a nutrient?
- “Conditionally essential” nutrients
- Nutritional factors in fertility
 - Targeting mitochondrial dysfunction
- Improving insulin sensitivity



Human Genome Project

Goals:

- Identify all the approximate 30,000 genes in human DNA,
- Determine the sequences of the 3 billion chemical base pairs of DNA

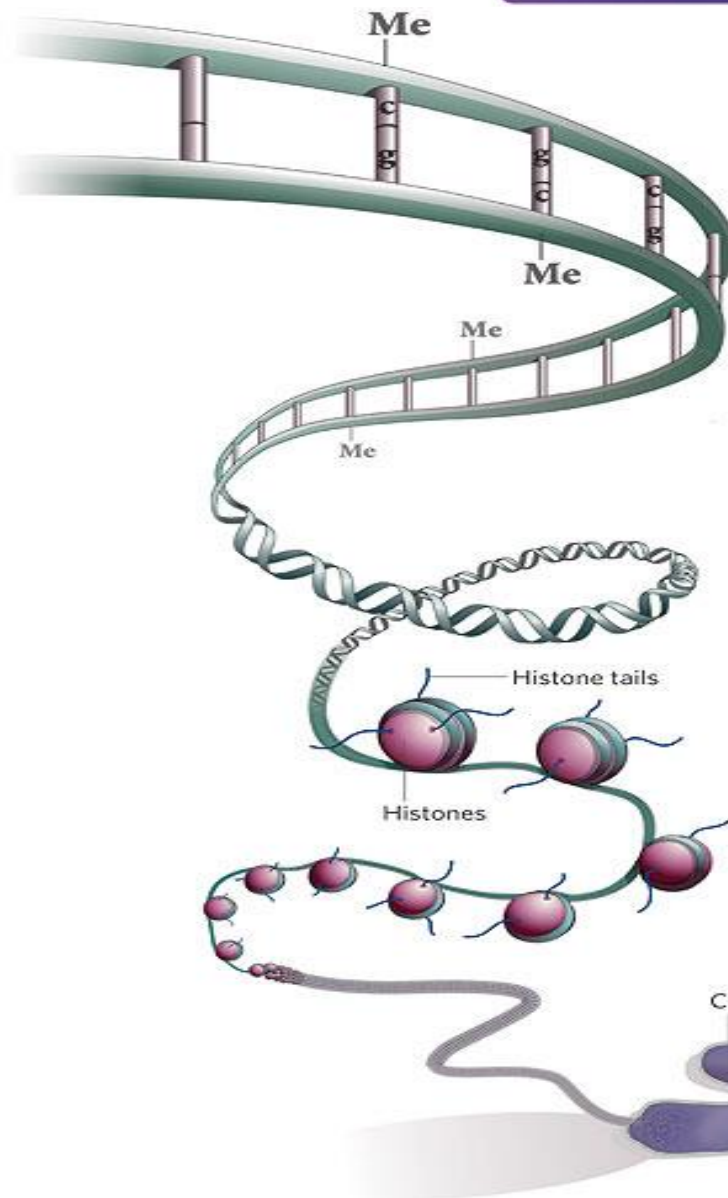
Milestones:

- 1990: Project initiated as joint effort of U.S. Department of Energy and the National Institutes of Health
- June 2000: Completion of a working draft of the entire human genome
- February 2001: Analyses of the working draft are published
- April 2003: Sequencing is completed and Project is declared finished two years ahead of schedule



Epigenetics and Nutrigenomics

- Epigenetics:
 - The expression of genetic programming is influenced by non-genetic factors
- Nutrigenomics:
 - The influence of nutrition on genetic expression that is primarily related to its epigenetic factors



The two main components of the epigenetic code

DNA methylation

Methyl marks added to certain DNA bases repress gene activity.

Histone modification

A combination of different molecules can attach to the 'tails' of proteins called histones. These alter the activity of the DNA wrapped around them.



Methylation, silencing, and cancer

- Epigenetic hypermethylation can lead to silencing of tumor suppressor genes.
- Conversely, epigenetic hypomethylation is associated with the over-expression of oncogenes (cancer causing genes).



Metabolic Imprinting

Refers to the effects of diet

- During pregnancy, infant feeding, and early childhood on the development of chronic diseases in later life.


Increasing evidence of role especially in the development of:

- Diabetes or metabolic syndrome, atherosclerosis, hypertension, cancer, and mental function
- Food allergy and intolerance, asthma



A Tale of Two Mice





What Determines Litter Outcome?

Maternal Diet



Yellow Mouse

- High risk cancer, diabetes, obesity
- Reduced lifespan



Agouti Mouse

- Lower risk of cancer, diabetes, obesity
- Prolonged life



7 Key Dietary Principles of the Optimal Health Diet

- Eat to support blood sugar control
- Eat a rainbow assortment of fruits and vegetables
- Reduce exposure to pesticides
- Do not over consume animal foods
- Eat the right types of fats
- Keep salt intake low, potassium intake high
- Drink sufficient amounts of water each day



What is a Nutrient?

Classic categories:

- Proteins
- Carbohydrates
- Fats
- Vitamins
- Minerals
- Water



What is an “Essential” Nutrient?

Classic definition:

“An essential nutrient is a nutrient required for normal body functioning that either cannot be synthesized by the body or cannot be made in amounts adequate for good health”



A Call for a New Order

- Expand the definition of a “**nutrient**”
 - Include all food compounds as well as physiological substances
- Utilize the definition of “**essential**”
- Establish new nutrient categories



What are **“Essential”** Fatty Acids?

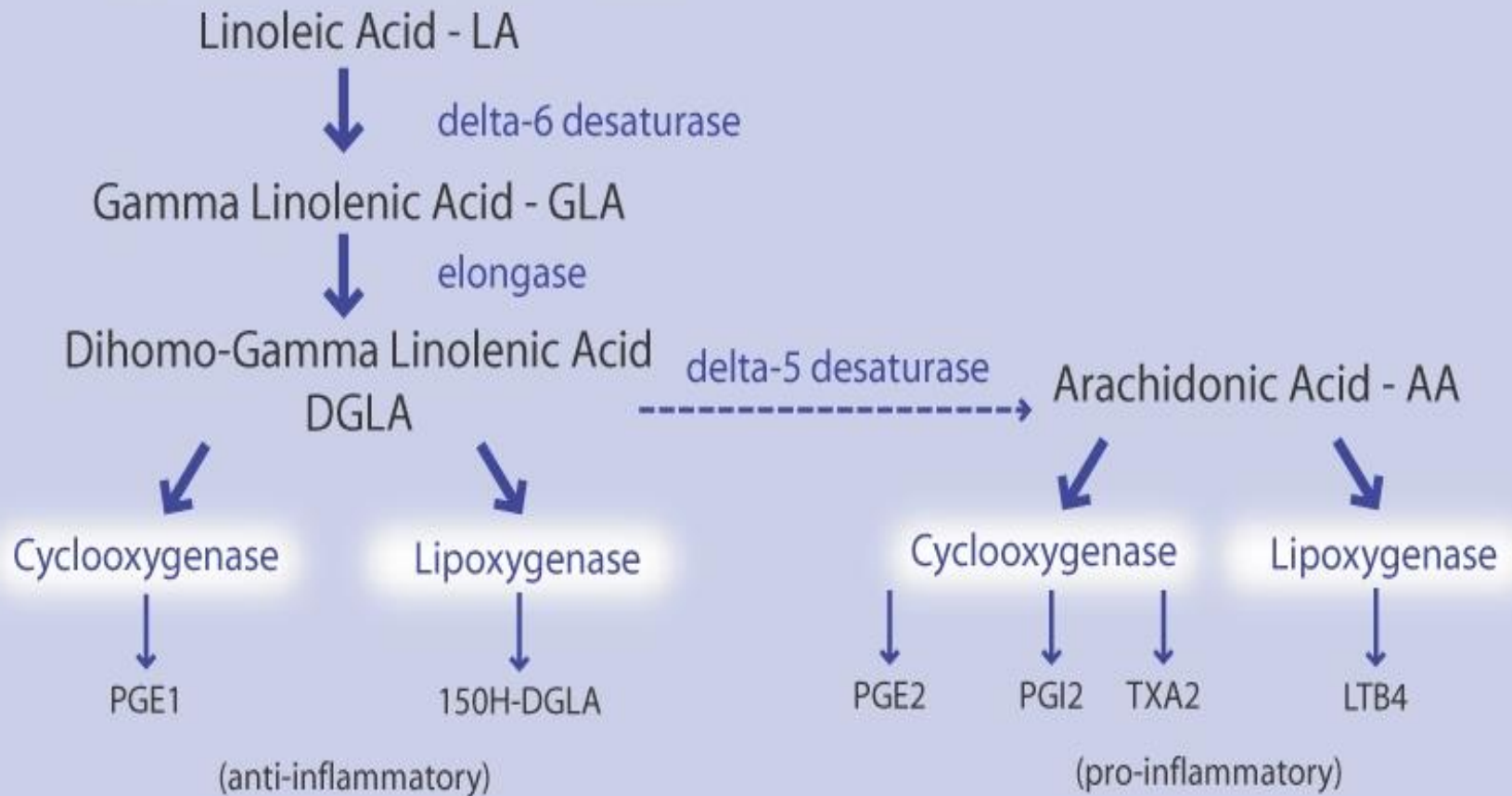
- Using the strict definition, there are only two fatty acids are truly “essential” fatty acids:
 - Linoleic Acid (LA) – an omega-6 fatty acid
 - Alpha-Linolenic Acid (ALA) – an omega-3 fatty acid



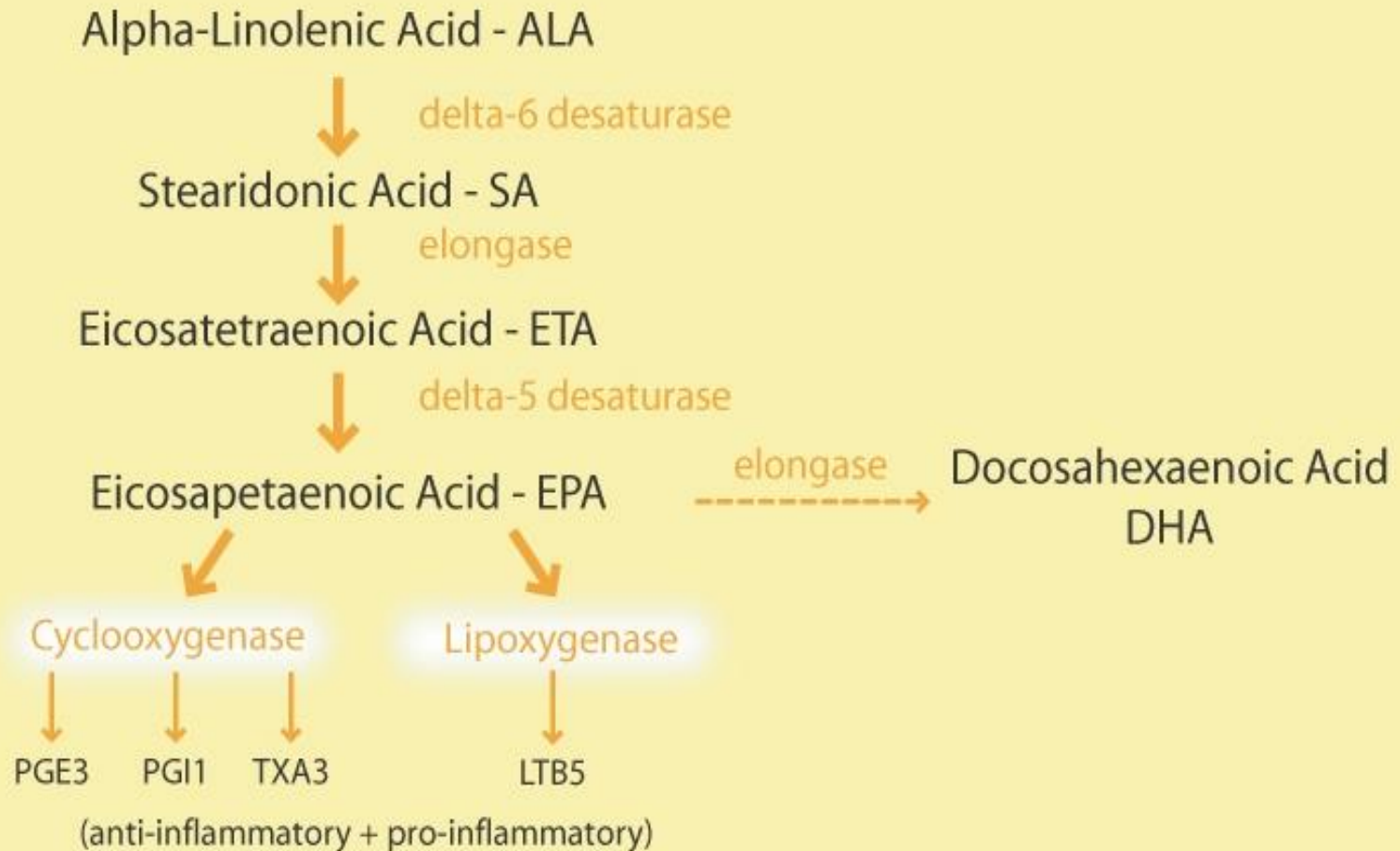
“Conditionally” or “Semi-” Essential Fatty Acids

- Examples:
 - Omega-6 fatty acids
 - Gamma-Linolenic Acid (GLA)
 - Arachidonic Acid (AA)
 - Omega-3 fatty acids
 - Stearidonic Acid (SDA)
 - Eicosapentaenoic Acid (EPA)
 - Docosahexaenoic Acid (DHA)

Omega-6 Fatty Acids



Omega-3 Fatty Acids





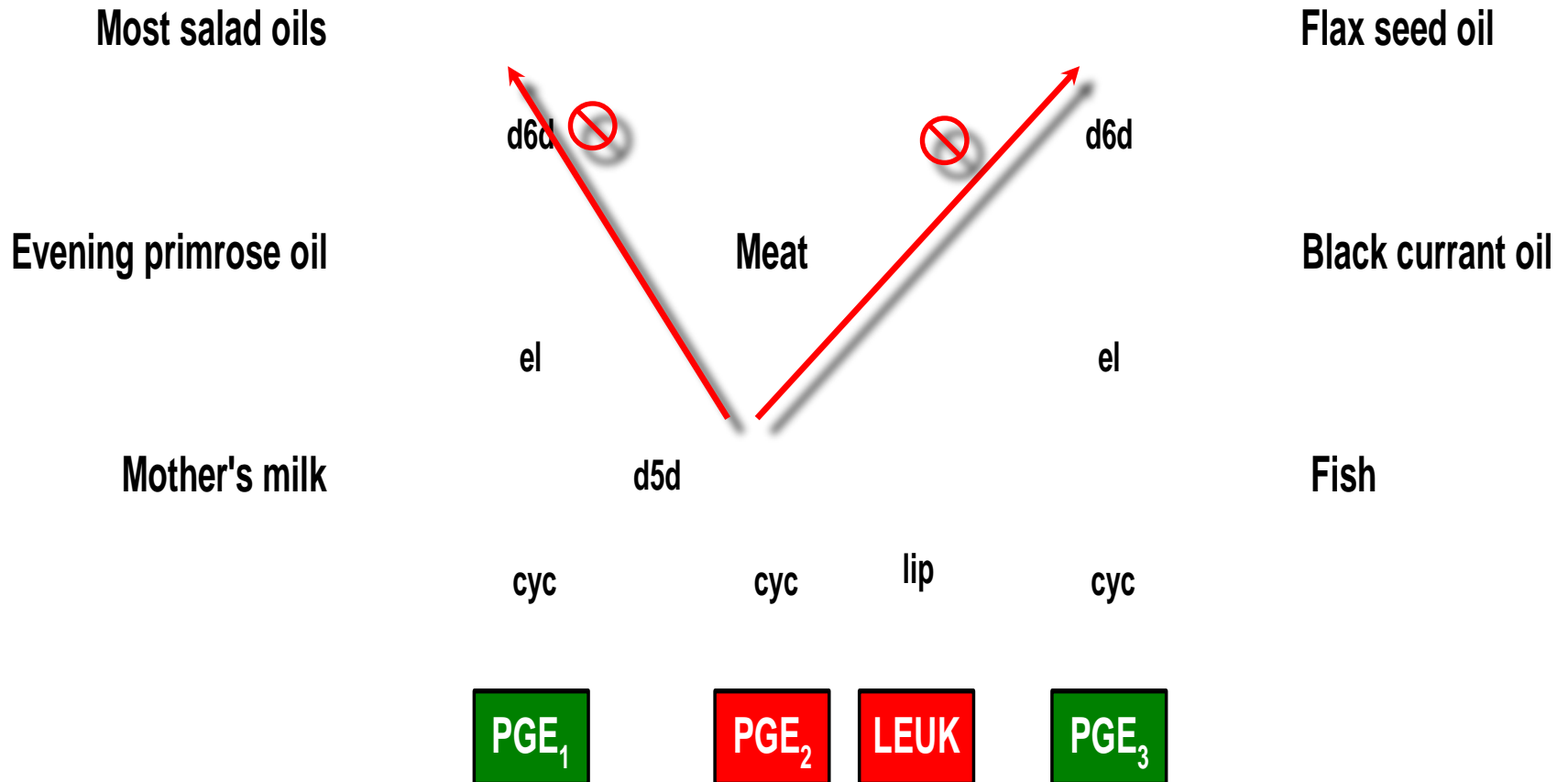
Inhibitors of Delta 6 Desaturase

- Insulin resistance
- Viral infection
- Atopic disease
- Cholesterol
- Stress hormones
 - Corticosteroids
 - Catecholamines
- Aging
- Alcohol
- Smoking
- Arachidonic acid
- Saturated fat
- Trans fatty acids
- Nutrient deficiency
 - Zinc, B6, vitamin C



Fatty Acid Metabolism

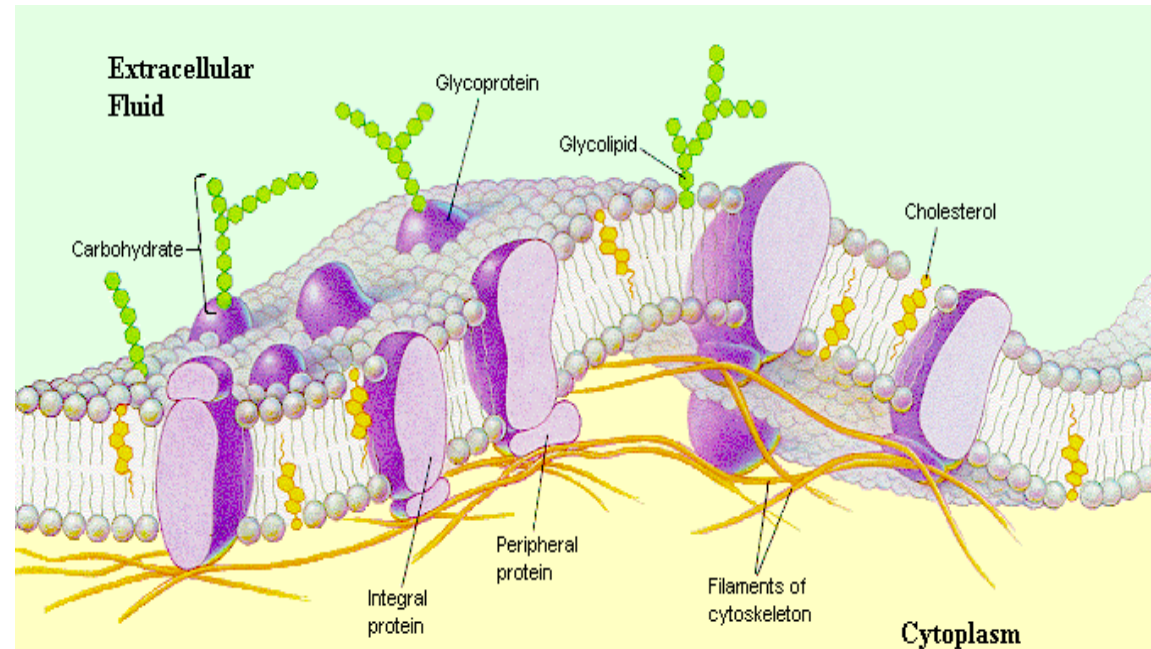
Omega 6 Fatty Acids Omega 3 Fatty Acids





Functions of EFAs

- Membrane Functions and Integrity
- Regulation of Cell Processes
- Biosynthesis of Eicosanoids





Cell membrane consequences of fatty acid structure

- Saturated and trans fatty acid chains pack tightly and form more rigid membranes.
- Unsaturated chains bend and pack in a less ordered way, with greater potential for motion, elasticity, and function especially long chain omega-3 fatty acids.
- Determines receptor site affinity and post-receptor action.



Are Omega-3 FAs “Conditionally Essential” in Cases of Infertility?

- Absolutely
 - Effects in Females
 - Improves pregnancy outcome, reduces miscarriage risk
 - Increases uterine perfusion
 - Improves endometrial and prostaglandin production
 - Effects in males
 - Associated with more favorable sperm levels, morphology, and motility (Hum Reprod. 2012 May;27(5):1466-74)
 - Also, reduce omega-6 & saturated fats, increase omega-9



What is An Effective Dosage?

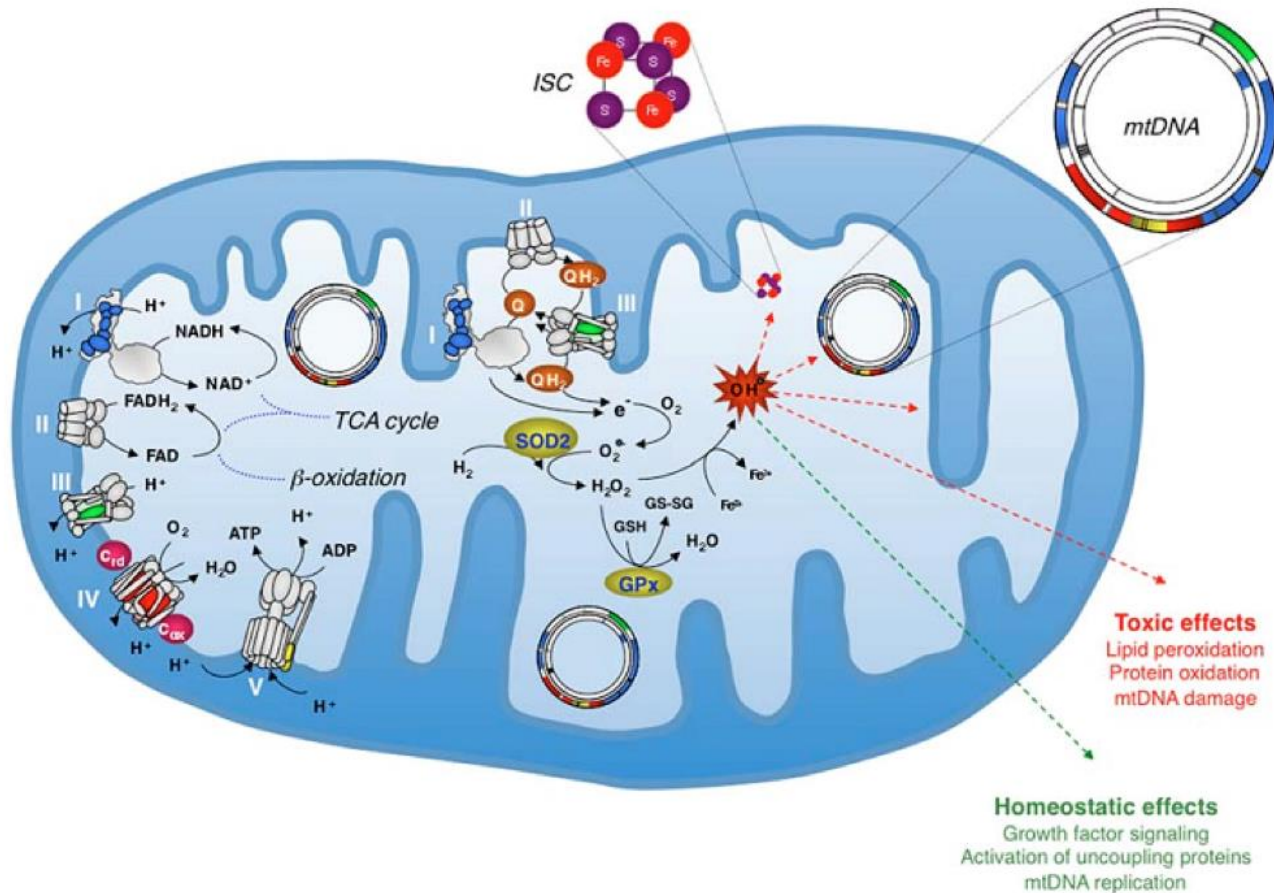
- Ideally, measure RBC or whole blood EFAs
 - Goals: Omega-3 index of >8%; WB omega-3 60-70%
- Recommended dosage
 - Females: 1,000-2,000 mg EPA+DHA daily
 - Males with oligo-, astheno-, and/or teratozoospermia: 2,000-3,000 mg EPA+DHA daily



Other Examples of Conditionally Essential Nutrients

Glucosamine	<i>Coenzyme Q10</i>	<i>Carnitine</i>	<i>Alpha-lipoic acid</i>
SAMe	Glutamine	Melatonin	Phosphatidylserine
Glutathione	5-HTP	Arginine	Hyaluronic acid
Ribose	Beta-alanine	GABA	Glycerophosphocholine
Choline	Inositol	Betaine	Nucleotides
Tocotrienols	Carnosine	Lutein	Lycopene

Is Mitochondrial Dysfunction a Factor in Infertility?





Conditions Associated with Mitochondrial Dysfunction

- Aging
- Alzheimer's disease & dementia
- Autism
- Chronic fatigue syndrome
- Fibromyalgia
- Heart disease
- Diabetes
- Migraine headache
- Parkinson's disease



How do you improve mitochondrial function?

- A four-part strategy is required:
 - Provide essential nutrients
 - Provide protection from oxidative damage
 - Reduce exposure to damaging factors
 - Boost glutathione levels to enhance detoxification processes



BioFoundation-G

Benefits:

- Provides rate limiting nutrients for glutathione production, necessary for xenobiotic detoxification
- Full spectrum multiple vitamin and mineral, with 2000 IU vitamin D3 per serving
- Contains clinical doses of resveratrol, lipoic acid, CoQ10, milk thistle and green tea extract
- Broad spectrum antioxidant support, including bilberry and citrus extracts, lipoic acid, lycopene and lutein
- Highly bioactive and bioavailable nutrients, such as pyridoxal-5-phosphate and vitamin K2 (Menaquinone 7)



Selected Nutrients in Female Infertility

Nutrient	Benefit
L-Carnitine (3-4g/d)	Improves peritoneal fluid and mitochondrial role in DNA arrangement and oxygen utilisation of oocyte
Alpha-Lipoic Acid (300-600mg/d)	Protection against oxidative stress to reduce time for conception; increase fertilisation; improve oocyte penetration, function and viability; improve implantation rates and reduce loss of implantation ⁴
CoEnzyme Q10 (dosage discussed later)	Mitochondrial ATP synthesis; supports mitochondrial function; protects maturing oocytes from oxidative damage; improves zona pellucida integrity and receptivity to sperm and ART (especially ICSI procedures)



Selected Nutrients in Male Infertility

Nutrient	Benefit
L-Carnitine (3-4g/d)	When carnitine levels are low, sperm development, function, and motility are drastically impaired. Carnitine supplementation improves all aspects sperm.
Antioxidants	A Cochrane review concluded there is sufficient evidence to prove that antioxidant supplementation in subfertile males improves the outcome of live births and pregnancy rates for subfertile couples undergoing ART cycles.
CoEnzyme Q10 (dosage discussed later)	Considered to be the most crucial and powerful antioxidant in sperm structure owing to its role in mitochondria. Believed to promote motility and foster sperm survival



Coenzyme Q10

Function:

- Required for the production of ATP (chemical energy) by mitochondria and important cellular antioxidant

Primary Clinical Applications:

- ★ Heart disease (angina, cardiomyopathy, congestive heart failure, high blood pressure, etc.)
- ★ Neurodegenerative disease (e.g., Alzheimer's & Parkinson's)
- ★ Prevents statin-induced depletion and cardiotoxicity of chemotherapy drugs
- ★ Boost immune function, anti-aging, periodontal disease, macular degeneration, etc.



CoQ10 Levels in Humans

- **Normal blood ranges:**
 - 0.7 to 1.0 mcg.ml
 - Approximately 95% is ubiquinol
- **Deficiency can be caused by:**
 - Decreased dietary intake
 - Normal intake about 5 mg/day
 - Impaired biosynthesis
 - Increased need
 - Aging, CV disease, cancer, diabetes, periodontal disease



What do we know?

- When CoQ10 is given with food it is absorbed twice as fast and at least two-fold greater than on an empty stomach.
- The absorption of CoQ10 may be limited in some individuals.
- When dosages of CoQ10 begin to exceed 300 mg the percentage of CoQ10 absorbed declines rapidly.
- Divided dosages (e.g., b.i.d. or t.i.d.) result in higher plasma levels compared to single dosages, especially at higher dosage levels.
- Eventually a steady-state is produced (usually after 3-4 weeks of constant dosing)



Ubiquinol Absorption Study

- Active soft gelatin capsule contained 30 mg of ubiquinol emulsified with diglycerol monooleate, canola oil, soy lecithin, and beeswax. Placebo was without ubiquinol.
- In the 4-week study, subjects received 10 capsules daily, 5 capsules each after breakfast and dinner with 180 ml of water for 28 days. The intakes were 0 + 5 and 0 + 5 for the placebo group, 2 + 3 and 1 + 4 for the ubiquinol 90 mg group, 3 + 2 and 2 + 3 for the ubiquinol 150 mg group, and 5 + 0 and 5 + 0 for the ubiquinol 300 mg group.



Coenzyme Q10 in CHF

Analysis of a “negative” study

Summary: 55 patients with CHF NY class III and IV, ejection fraction less than 40%, and peak oxygen consumption less than <50% during standard therapy were randomly assigned to receive CoQ10 (200 mg) or placebo. There were no changes in ejection fraction, peak oxygen consumption, and exercise duration in either group. The mean serum concentration of coenzyme Q10 increased from 0.95 mcg/ml to 2.2 mcg/ml, but 19 of 22 pts. on CoQ10 had levels below 2.5 mcg/ml and 18/22 were on beta-blockers.



Coenzyme Q10 in CHF

Effect of Ubiquinol in unresponsive patients

Summary: Seven patients with plasma CoQ10 levels of 1.6 microg/ml on an average dose of 450 mg of ubiquinone daily (150-600 mg/day) were changed to an average of 580 mg/day of ubiquinol (450-900 mg/day). Mean plasma CoQ10 levels increased from 1.6 mcg/ml up to 6.5 mcg/ml. Mean ejection improved from 22% (10-35%) up to 39% (10-60%) and NYHA class improving from a mean of IV to a mean of II (I to III).



Comparative Absorption

100 mg Estimated plasma levels in mcg/ml

Ubiquinone powder in hard gelatin capsule	1.25
Ubiquinone in soft gelatin capsule w/rice bran oil	1.8
Ubiquinone solubilized in soft gelatin capsule (Q-Gel)	2.25
Ubiquinone powder nanonized and dispersed in water	2.25
Ubiquinone (BioQ10 SA) in soft or hard gelatin capsule	2.50
Ubiquinol in soft gel capsule	2.50



Comparative Absorption

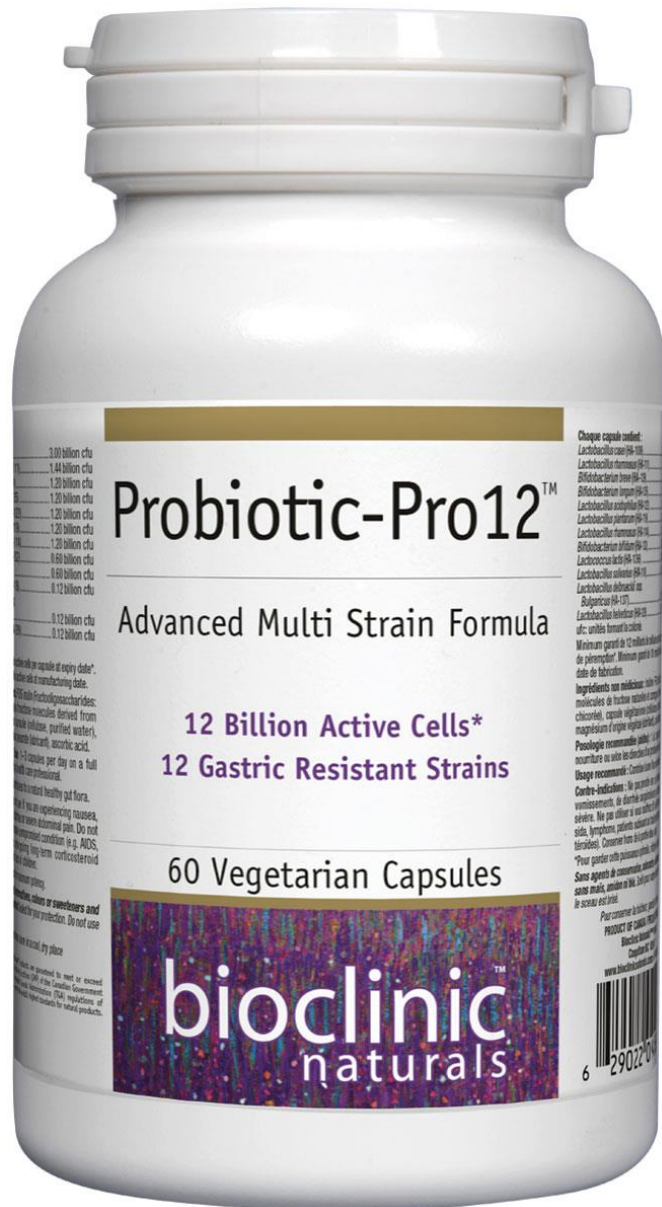
300 mg Estimated plasma levels in mcg/ml

Ubiquinone powder in hard gelatin capsule	2.5
Ubiquinone in soft gelatin capsule w/rice bran oil	3.5
Ubiquinone solubilized in soft gelatin capsule	5.0
Ubiquinone powder nanonized and dispersed in water	5.5
Ubiquinone (BioQ10 SA) in soft or hard gelatin capsule	7.0
Ubiquinol in soft gel capsule	7.0



Probiotics in Infertility

- Dysbiosis is linked to reproductive failure and adverse pregnancy outcomes such as preterm labor, miscarriage, and spontaneous preterm birth.
- Women with dysbiosis were four times more likely to have a spontaneous preterm birth compared to the overall preterm birth rate.



- **Key Benefits:**

- Human or Dairy Origin
- Highly resistant to gastric acid and bile
- Multiple, highly efficacious strains
- Verified compatibility
- Guaranteed potency at expiration date



Estrogen Detoxification

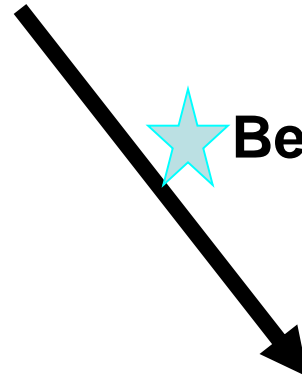
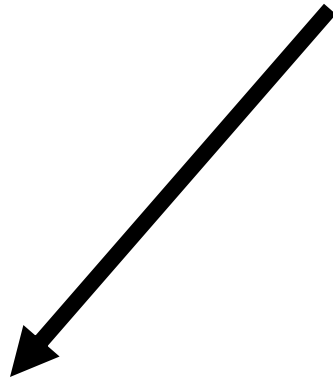
Estrogen

Conjugated with glucuronate in liver



General circulation

Excreted into the intestines with bile



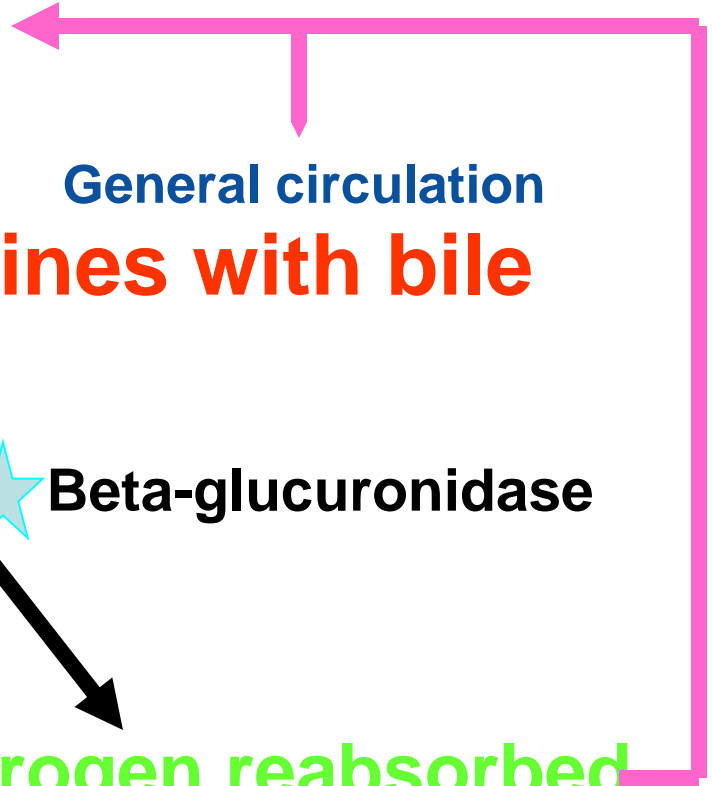
Beta-glucuronidase

Eliminated in feces

Free estrogen reabsorbed



Enzyme inhibited by certain probiotics, D-glucarate





Obesity in Infertility

Results from recent studies

In Women:

Fertil Steril. 2012 May 12. The effect of body mass index on the outcomes of first assisted reproductive technology cycles.

CONCLUSION:

Obesity has a significant negative effect on ART outcomes. Patients with BMI >30 kg/m² have up to 68% lower odds of having a live birth following their first ART cycle compared with women with BMI <30.

In Men:

BJU Int. 2012 Feb 2. Association between obesity and alteration of sperm DNA integrity and mitochondrial activity.

CONCLUSION:

Increased BMI values are associated with decreased mitochondrial activity and progressive motility and increased DNA fragmentation in sperm.

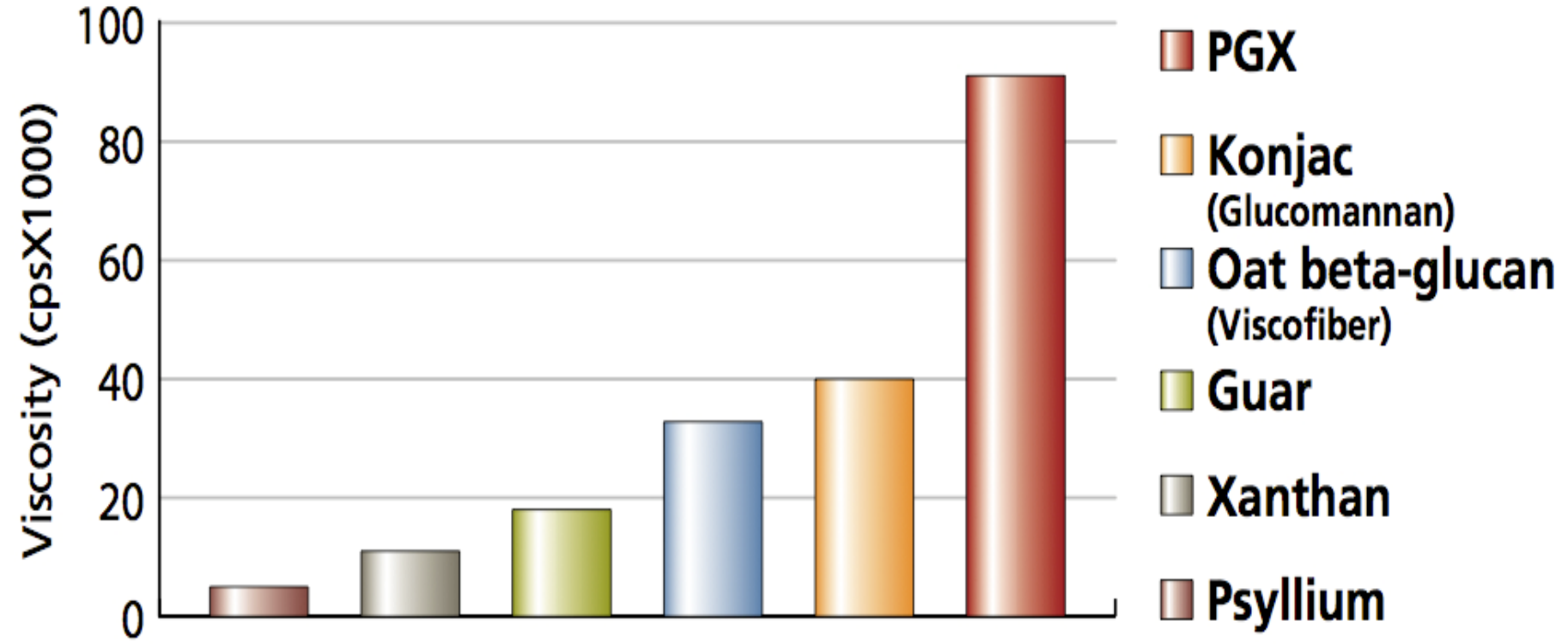


PGX[®] (PolyGlycopleX[®])

- Patented soluble fibre matrix with exceptional viscosity
- PGX is NOT a blend
 - IUPAC (International Union of Pure and Applied Chemistry) name: (α -D-glucurono- α -D-manno- β -D-manno- β -D-gluco), (α -L-gulurono- β -D mannurono), β -D-gluco- β -D-mannan
- PGX possesses unique physical qualities and physiological benefits
- Binds more than 600 times its weight in water
- Produces clinical results at practical dosages



PGX compared to other plant fibres





PGX Provides Unique Benefits

- Reduces appetite and promotes effective weight loss
- Increases the level of compounds that promote satiety
- Decreases level of compounds that stimulate overeating
- Reduces the glycemic index of any food or beverage
- Increases insulin sensitivity
- Stabilizes blood sugar levels
- Lowers blood cholesterol and triglycerides



Continuous Glucose Monitoring System (CGMS)



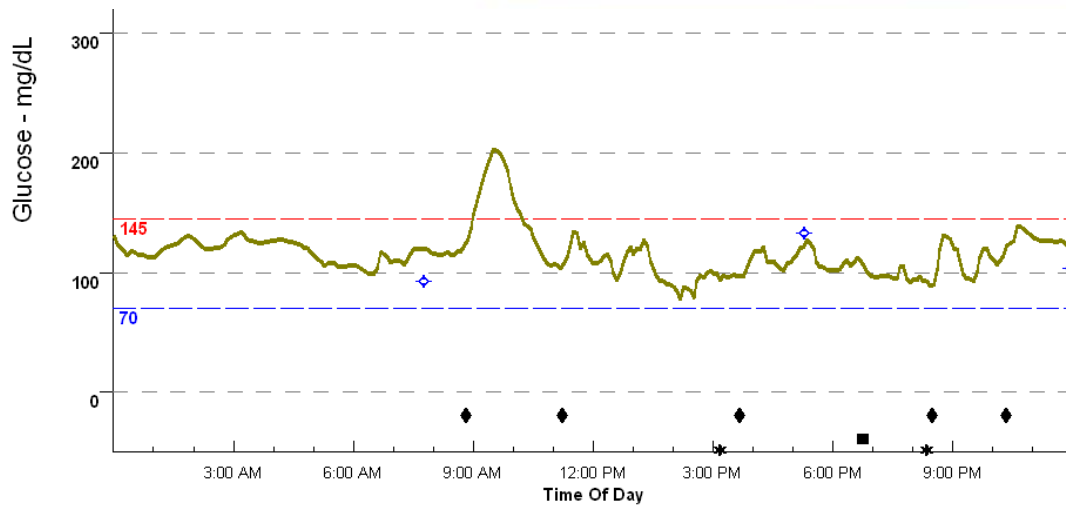


Figure 1 - Overweight adult before weight loss demonstrating elevated blood sugar (glycemic) volatility.

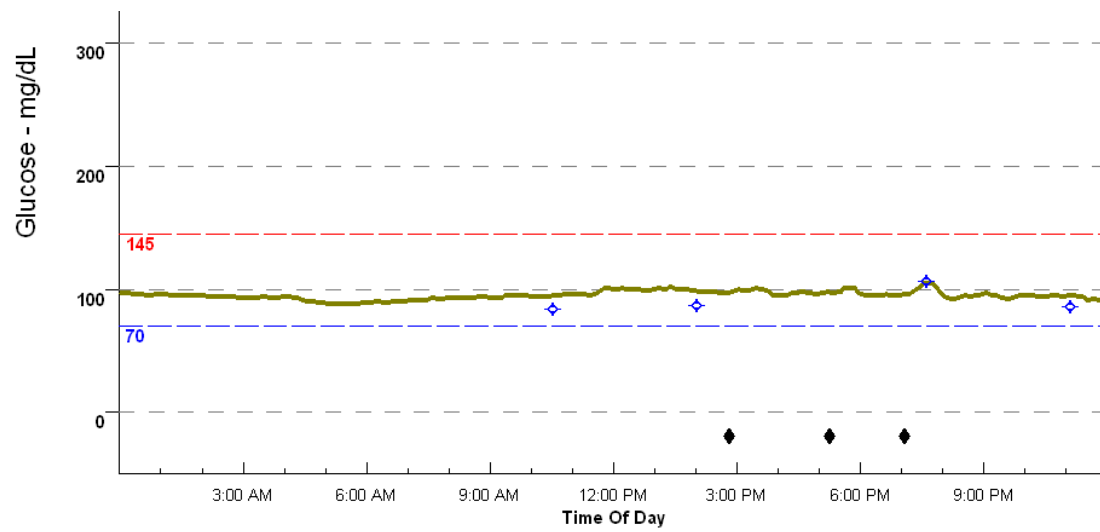


Figure 2 - 24 hour continuous blood sugar in an overweight adult 4 weeks into the PGX Program



Practical Matters with PGX

- **Dosage**
- Side Effects
- **Drug Interactions**
- Nutrient Interactions



Questions and Answers

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