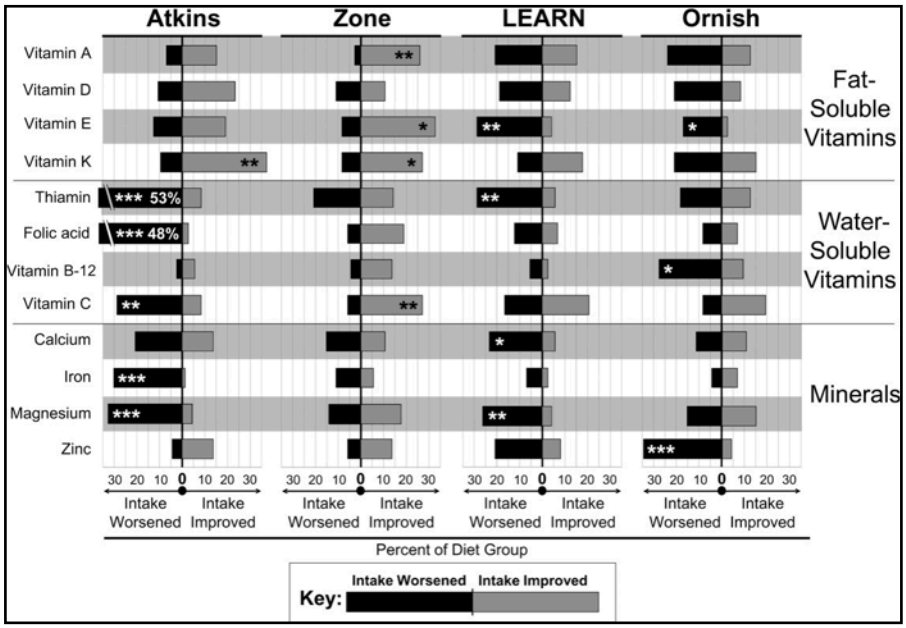
ISAGENIXSCIENCE

Nutrients Lacking in Diets



Shifts in miconutrient intake reflecting percent of diet groups. Reference: Gardner et al. *Am J Clin Nutr* 2010.

Losing weight is an admirable goal, but not if proper nutrition is lost in the process. Most popular diets do not provide adequate vitamin and mineral intake, and could put dieters at high risk of nutrient deficiencies.

Stanford University Medical School researchers evaluated the micronutrient quality of four diets: Atkins, Zone, LEARN (Lifestyle, Exercise, Attitudes, Relationships, Nutrition), and Ornish. Each failed to provide adequate amounts of certain vitamins and minerals.

The scientists concluded that the different diets could *potentially result in clinically relevant nutritional deficiencies.*

In the study, participants included 311 premenopausal overweight or obese women ages 25 to 50 who were recruited from Stanford's A to Z trial -- a large randomized trial comparing weight-loss diets. They randomly assigned the women to read one of four diet books: *Dr Atkins New Diet Revolution* (2002), *Enter the Zone a Dietary Roadmap* (1995) by Barry Sears, *The LEARN Program for Weight Management* (2000), or *Eat More Weigh Less* (2001) by Dean Ornish.

Each of the diet groups also attended one-hour evening classes every week for eight weeks, where they were taught to master their assigned diets for the next 10 months. The researchers collected data by making unannounced

Suk's Letter

One of the most effective ways to combat the ravages of aging is to take a quality multivitamin supplement that guards against nutrient gaps in the diet, which could lead to deficiency and poor health. In this issue of *Isagenix Science*, we make the case for why multivitamins are necessary, why Essentials for Men/Women is the best supplement for you, and why the science behind antioxidants and bioactives for long-term health and slowing aging remains as strong as ever. In addition, we discuss the new line of thinking regarding the relationship between omega-3s and omega-6s.

Enjoy!

-Suk Cho, Ph.D.

POPULAR DIETS DEFICIENT IN VITAMINS AND MINERALS

24-hour dietary recall assessments by telephone.

The authors note that *participants avoided taking any multinutrient supplements* while they participated in the study to avoid confounding results.

The micronutrients lacking in the Ornish diet were vitamins E and B12 along with zinc. Atkins lacked vitamin C, thiamin, folic acid, iron, and magnesium. LEARN lacked vitamin E, thiamin, and magnesium. The Zone diet fared best overall for micronutrient adequacy, which the authors attribute to its balanced 40:30:30 distribution of calories from carbohydrates, fats and proteins. However, Zone still did not achieve all levels of vitamins and minerals needed for for optimal health.

Similarly, findings from an earlier study reported that popular diets Atkins for Life, The South Beach Diet, DASH eating plan, and The Best Life Diet also resulted in deficiencies.

When reducing caloric intake, it's important to be aware that doing so may lead to decreased micronutrient intake, the authors concluded. Additionally, choosing foods that are nutrient dense or supplementing with a multinutrient supplement can provide the right nutrients critical for long-term health.

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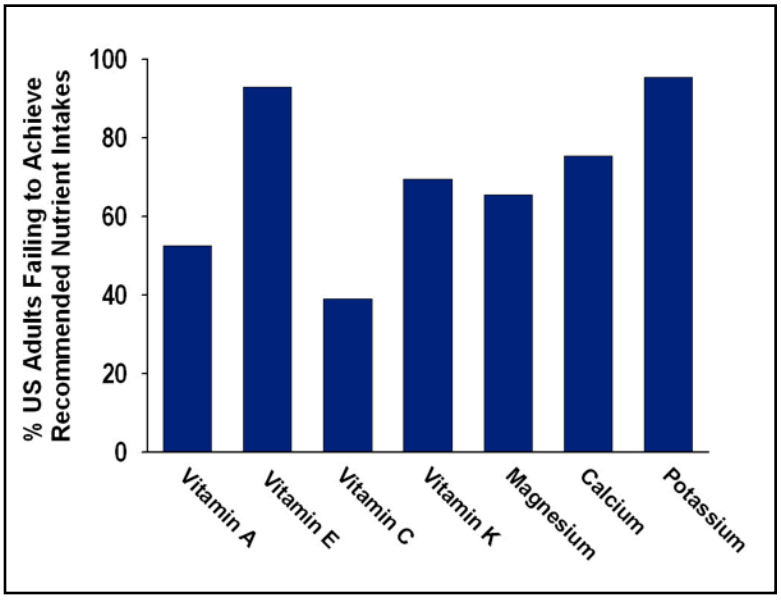
ARE YOU GETTING ENOUGH FROM YOUR MULTIVITAMIN?



Raidemar et al. NHANES. 2004.

Despite rampant overeating, the majority of people in the United States still fail to get the full amounts of vitamins and minerals as recommended by the Institute of Medicine.

Most still fail to obtain sufficient amounts of vitamins A, E, C, and K, as well as minerals such as magnesium, calcium and potassium, according to the latest data from National Health and Nutrition Examination Surveys.

This is why medical researchers recommended multivitamins in 2002 in the *Journal of the American Medical Association*.

What's more, studies show that nutrient gaps are made worse by adopting popular diets (see article on page 1) and that current recommended daily amounts for a few nutrients, such as vitamin D, may not be at

ESSENTIALS FOR MEN AND WOMEN: ADVANCED SCIENCE AND TECHNOLOGY

levels high enough for optimal health.

A multinutrient supplement is a convenient way for meeting nutrient gaps, but there is a big difference in quality. Many supplements *don't take advantage of the latest science of appropriate dosing or have invested in the latest technology for disintegration, absorption and bioavailability. For example, supplements may:*

- not disintegrate or become soluble enough for maximum absorption.
- contain forms of vitamins and minerals that are not as potent in the body -- an example is vitamin D, which is more potent as vitamin D3 (cholecalciferol) versus vitamin D2 (ergocalciferol).
- lead to overdose of certain nutrients such as vitamins A and E, which could become toxic in high amounts.
- contain incorrect ratios of minerals, which increase absorption competitiveness. For example, having too much zinc may lead to a copper deficiency since zinc and copper compete for the same absorption sites.
- contain anti-nutrients such as phytates or oxalates (from teas or vegetables such as spinach) that inhibit mineral absorption.

The Isagenix Difference

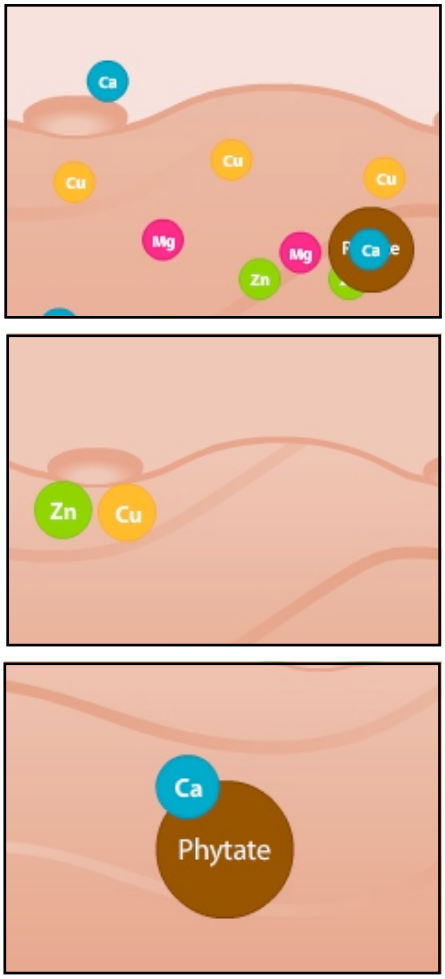
Isagenix Essentials for Men and Women are products of collaborative research with top nutrition scientists and formulated by the Isagenix research and product development teams.

The teams capitalized on the most recent scientific literature for appropriate dosing -- without overdosing -- for long-term health and anti-aging.

Essentials uses forms of vitamin and minerals that are well-studied for efficacy of absorption, bioavailability, and ultimate benefit to the body.

For example, Essentials contains the natural form of vitamin E as d-alpha tocopherol, which is shown in studies to be clearly superior to the synthetic version, dl-alpha tocopherol. Unlike other multivitamins, the vitamin E is present along with tocotrienols (as in nature) to produce a synergy for guarding heart health. Another example is use of vitamin K2 versus K1 due to new knowledge of K2's involvement in supporting cardiovascular and bone health.

This unique formulation is also built using rapid disintegration technology. Rapid disintegration facilitates dissolution, which optimizes nutrient absorption within the small intestine.



Top: *Illustration of binding capacity oversaturation in the intestine.*

Middle: *Illustration of zinc and copper competing for absorption (mineral competition).*

Bottom: *Illustration of calcium absorption impairment because of phytate chelation.*

Optimum Nutrient Delivery

When a tablet is taken orally, it passes through the mouth, into the esophagus and enters the stomach, where it then (along with food) stimulates the secretion of stomach acid. The stomach acid converts the tablet

ADVANCEMENTS IN AGELESS ESSENTIALS DAILY PACK

into a suspension of small particles that are then pushed into the small intestine where nutrient dissociation and absorption takes place:

- First, greatest absorption is achieved because Essentials for Men/Women are designed to be taken over the course of the day (two tablets, two times daily).
- Second, the tablets contain minerals in amounts that take into account mineral competitiveness.
- Third, the tablets avoid anti-nutrient components such as phytates that decrease mineral absorption.
- Fourth, Essentials features a sustained-release technology by using forms of nutrients with different molecular weights, sizes, and separation rates.

The combination of these elements creates a staggered release of nutrients into the small intestine, providing steady passage and absorption of the various nutrients into the bloodstream.

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FUSING AGING THEORIES: TELOMERES, OXIDATIVE STRESS, MITOCHONDRIA

New research is adding insight and linking three theories of aging—one that suggests telomere shortening governs lifespan, and two others that suggest dysfunctional mitochondria or oxidative stress leads to aging.

"What we have found is the core pathway of aging connecting several age-related biological processes previously viewed as independent from each other," said Ronald A. DePinho, M.D., a cancer geneticist and senior author of the paper (EurekaAlerts).

"The findings bear strong relevance to human aging, as this core pathway can be directly linked to virtually all known genes involved in aging, as well as *current targeted therapies designed to mitigate the toll of aging on health*," Dr. DePinho said (emphasis added).

Those current targeted therapies include boosting the human body's antioxidant defenses *by eating a healthy diet, reducing calories (by around 25 percent), and supplementing with antioxidant vitamins C and E, as well as with green tea, CoQ10 and resveratrol.*

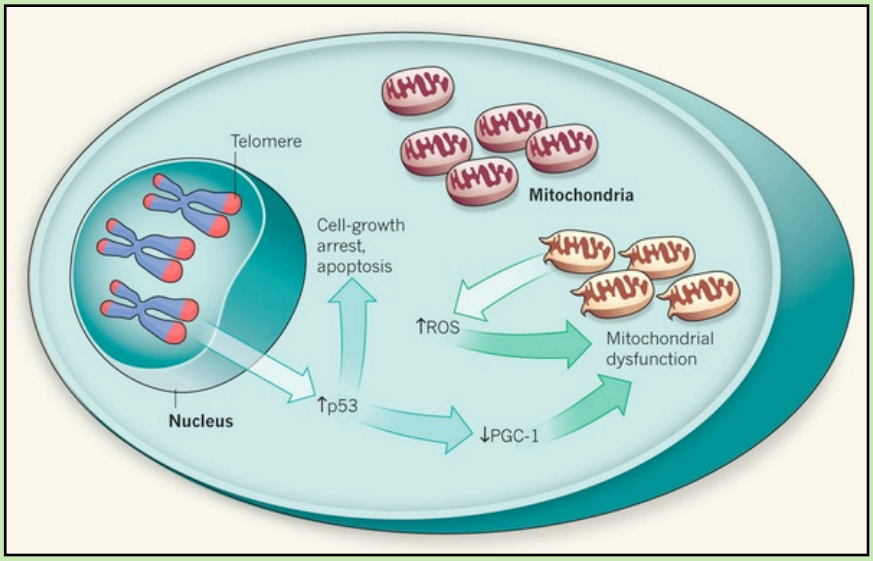
These practices not only help to protect against oxidative stress, thereby protecting against telomere shortening, but also help boost generation of new, healthy mitochondria.

MITIGATING THE TOLL OF AGING

At Harvard-affiliated Dana-Farber Cancer Institute, scientists led by Dr. DePinho gathered data suggesting telomere shortening is the cause of mitochondrial dysfunction and diminished antioxidant defenses. Together, they decrease the body's energy and diminish organ function, both characteristics of old age.

As telomeres—protective caps at the end of cell chromosomes—shorten with age and begin to fray, cells activate the p53 gene, which signals an "emergency shutdown" chain of events that turns off normal cell growth and division and compromises antioxidant defenses. Going one step further, data from the carefully orchestrated mouse study, published in *Nature*, show that the p53 gene also represses PGC1-alpha and PGC1-beta. These PGCs are considered the master regulators of metabolism and mitochondrial function.

Repressing PGCs increases the number of dysfunctional mitochondria (with mutated mitochondrial DNA) and leads to a decrease in functional mitochondria distributed throughout muscles and organs. The dysfunctional mitochondria in aged tissues leak greater amounts of reactive oxygen species, and the lack of functional mitochondria hinders normal energy production from cell respiration (the body's main producer of ATP energy).



Kelly DP. *Nature* 2011.

"Because telomere dysfunction weakens defenses against damage by free radicals, or reactive oxygen species," Dr. DePinho said, "we think this exposes telomeres to an accelerated rate of damage which cannot be repaired and thereby results in even more organ deterioration. In effect, it sets in motion a death spiral."

In an article published in the same issue of *Nature*, Daniel P. Kelly, M.D., scientific director and professor at Burnham Institute for Medical Research-Lake Nona, Orlando, Florida, said that the "intriguing study… unveils a potentially unifying mechanism for cellular aging."

The study further supports current thinking, Dr. Kelly explains, that the best defense against aging is to reduce the adverse affects of overproduction of free radicals produced from dysfunctional mitochondria, which cause additional oxidative stress.

Major causes of oxidative stress include exposure to toxins, obesity, physical and psychological stress, and poor nutrition, *each of which are addressed with Isagenix Four Pillars of Health*.

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OVER A CENTURY: OMEGA-3 AND OMEGA-6

Dietary shifts took place in the 20th century with developments in food processing that suggest it's time to switch oils. Recently-published findings show that North Americans are not consuming less omega-3s (alpha-linolenic acid, or ALA), but from 1909 to 1999, consumption of omega-6 (linoleic acid, or LA) has skyrocketed.

Over the last century, consumption of omega-6 fatty acids, particularly from soy oil, increased more than a thousand-fold! This is the likely reason why most of us have a reduced concentration of omega-3 fatty acids in our bodies.

Why? Omega-3s and omega-6s are both essential for our health, but unfortunately they compete with one another for access to enzymes and entrance into tissues. Too much omega-6 leads to too little omega-3.

When consumption of dietary omega-6 increased disproportionally to dietary omega-3, with it came a jump in chronic health problems.

Taking control of dietary fats is as simple and practical as switching oils! Eating whole foods higher in omega-3s such as walnuts or flax seed, switching from corn and soy oil to olive oil, and eating fish at least two times weekly can help to correct omega-3 to omega-6 balance.

In addition, a quality fish oil supplement like IsaOmega Supreme™ provides the long-chain omega-3 fats (EPA and DHA) from fish that are associated with the majority of omega-3 benefits. The supplement is high in potency and purified using molecular distillation to ensure its safety with no detectable amounts of toxic elements commonly found in fish such as heavy metals, PCBs and dioxins.

Editorial

Managing Editor

David Despain, MS
Sr. Mgr. of Science Communications

Contributions and Copyediting

Suk Cho, PhD
Chief Science Officer

Pierre Teissier, PhD
VP of Global Product Development

Susie Rockway, PhD
Director of Research and Science

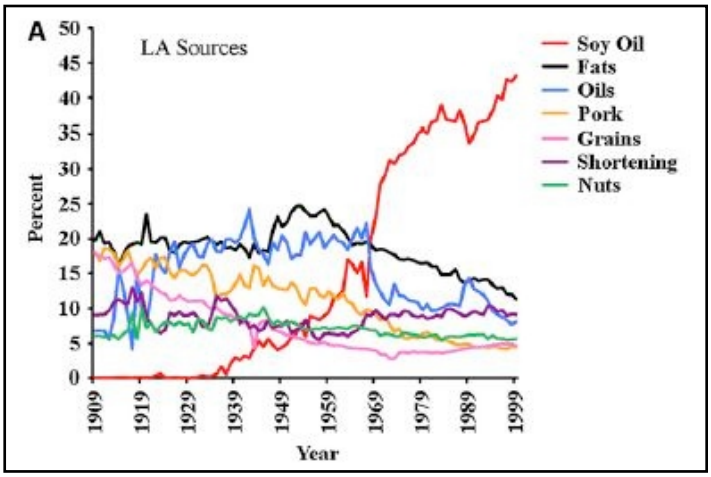
Dalia Blunt, MS

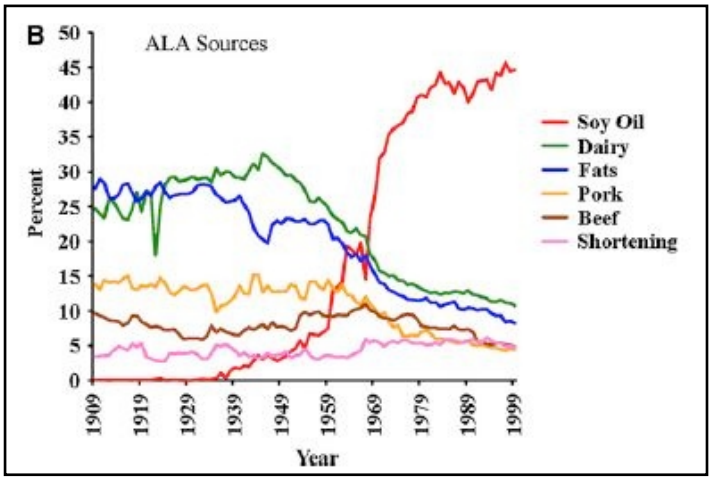
Amanda Jensen

Emily Lysyk (illustrations)

Leigh Flynn

www.isagenixhealth.net





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