

# ISAGENIXSCIENCE

## Get in Shape for Summer

*Spring cleanse your way to tank top and swimsuit season.*



*Isagenix Cleanse Days can provide you the “jump start” needed to help get you ready for outdoor activities.*

It’s that time of year when many people are sprucing up their home or wardrobe, but it’s also the perfect time to spruce up your health and body by cleansing with Isagenix. More than just a way to get your body toned for swimsuit season, cleansing with Isagenix offers a surefire way to recharge, energize, and improve your overall health. Cleanse Days will involve one or two days a week, or every other week, where you’ll abstain from food and instead drink Cleanse for Life, plenty of purified water, and other little nutrient-packed “tools” to get you through. Ask anyone who has lost weight on Isagenix and they will surely tell you that these Cleanse Days are

what gave them the “jump start” to results and benefits that are seen from the overall system. The testimonials may be compelling, but so is the science. Cleanse Days are even supported by observations seen in well-designed, published studies. Here are five reasons why Cleanse Days will bring you results:

### 1. “Jump Starts” Fat Burning

The reduction of calories on Cleanse Days stimulates the body’s fat burning furnaces by increasing growth hormone while suppressing proteins responsible for fat synthesis and storage (1). The surge in growth hormone also helps protect against muscle breakdown

### Suk’s Letter

With summer just around the corner, it’s time start planning to show off those IsaBodies! Still have a few more pounds to lose? In this issue of *Isagenix Science*, learn why Cleanse for Life on Cleanse Days and IsaLean Pro on Shake Days, when paired with resistance training exercise, can rev up fat burning and help you get in shape quickly. Also, don’t forget to protection from UVA/UVB rays while having fun in the sun! Learn why sun safety and inside-out healthy skin aging begins with Isa Sunguard and other products including IsaFruits, Greens, IsaDelight Plus, and Ageless Essentials Daily Pack.

Live well and stay healthy this summer with Isagenix!

- Suk Cho, Ph.D.

as long as followed with intake of quality protein (as on Shake Days). The Cleanse Days also appear to “reset” the food intake center in the brain since data show less food is eaten days following fasting (2).

### 2. Triggers Detoxification

The stimulation of fat burning leads to reduction of fat deposits and a release of stored exogenous (environmental) toxins. The smaller the fat cells become, the less pro-inflammatory cytokines,

or endogenous (inside the body) toxins, they produce (2-4). Cleanse for Life facilitates detoxification of both endogenous and exogenous toxins. Cleanse for Life supplies several significant advantages over traditional fasting: It provides fuel and nourishment that is depleted during normal fasting while simultaneously providing B vitamins essential for metabolism and energy production. It also provides bioactive herbs to stimulate detoxification (5-9). Finally, Cleanse for Life contains potent antioxidative complexes that directly contribute to the body's antioxidant defense system (7-12).



*Cleanse for Life helps stimulate detoxification.*

### 3. Improves Insulin Sensitivity

A review of animal and human studies investigating intermittent or alternate-day fasting, or abstaining from food for one or two days in between normal calorie consumption days, found that fasting resets cellular sensitivity to glucose and insulin (1). This in itself can promote better health—allowing the body to better control blood sugar. Recently, research has shown that periodic intermittent fasting was associated with reduced risk in type 2 diabetes and cardiovascular diseases (2).

### 4. Reduces oxidative stress and inflammation

Intermittent fasting is also associated with lower oxidative stress (2-4). This may be in part, as explained earlier, because as fat cells shrink they release fewer pro-inflammatory cytokines that cause oxidative stress and inflammation (2-4). Less total body fat also helps improve antioxidant status in the body. The end result is improved overall health and a lowered risk of chronic disease. Oxidative stress, in particular, puts a heavy toll on telomeres (related to aging). The lower the oxidative stress, the better for healthy aging.

### 5. Activates Your “Longevity Genes”

Animal studies suggest that intermittent fasting can activate genetic expression of SIRT1, dubbed the “longevity gene” (13). The scientific interest in sirtuins, the family of proteins including SIRT1 has grown since the early 2000s because of findings that

their stimulation—via calorie restriction, intermittent fasting, and compounds such as resveratrol—may slow aging and increase lifespan.


So what about the other parts of the Cleansing and Fat Burning System that are so great? For one, Shake Days on an Isagenix system can also be considered “calorie restricted” days. Two meals replaced with an IsaLean Shake and one 400- to 600-calorie well-balanced meal will most likely equate to consuming fewer calories than normal. If followed consistently, Shake Days also lead to weight loss. Additionally, as shown by Roy Walford, Ph.D., and other longevity researchers, calorie restriction protects against chronic disease and increases lifespan in animals and humans (1; 14-16). What’s more, the most important component of an Isagenix system is IsaLean Shake, a nutrient-dense meal that feeds the body quality whey protein, which has been consistently shown in studies to be the top choice (compared to other sources of protein like soy) for:

- Reducing muscle loss, which is usually associated with most weight-loss plans
- Reducing total body fat and visceral fat by increasing fat burning (oxidation)
- Increasing thermogenesis, which increases the amount of calories burned

The beauty of an Isagenix system lies in the combination of its individual parts. Not one that involves restricting yourself to drinking plain juices, or worse yet, taking laxatives, Isagenix offers a lifestyle plan that supports healthy weight loss, will get you into swimsuit-shape, and supports maximum detoxification and nutrition.

### References

1. Horne BD, et al. Usefulness of routine periodic fasting to lower risk of coronary artery disease among patients undergoing coronary angiography. *Am J Cardiol* 2008.2008 Oct 1;102 (7):814-81.
2. Varady KA, Hellerstein MK. Alternate-day fasting and chronic disease prevention: a review of human and animal trials. *Am J Clin Nutr* 2007;86-13.
3. Harvie MN et al. The effects of intermittent or continuous energy restriction on weight loss and metabolic disease markers: a randomized trial in

- young overweight women. *Int J Obesity* 35:714-727, 2011.
4. Heilbronn, LK, et al. Alternate-day fasting in non-obese subjects: effects on body weight, body composition, and energy metabolism. *Am J Clin Nutr* 2005;81:69-73.
  5. Liska DJ. The detoxification enzyme systems. *Alternative Medicine Review*. 1198;3(3):187-198.
  6. Liska DJ, et al. Detoxification and biotransformational imbalances. *Explore (NY)*. 2006 Mar;2(2):122-40
  7. Park BK et al. Relevance of induction of human drug-metabolizing enzymes: pharmacological and toxicological implications. *Br J Clin Pharmacol* 1996;41:477-491.
  8. Jeyanthi T et al. Influence of *Withania somnifera* on circadian rhythms of lipid peroxidation products and antioxidants in Gentamicin induced nephrotoxicity. *Biological Rhythm Research* 2010; 41(6): 477-86.
  9. Lin SC, et al. Hepatoprotective effects of *Arctium lappa* Linne on liver injuries induced by chronic ethanol consumption and potentiated by carbon tetrachloride. *J Biomed Sci* 2002;9:401-9.
  10. Kolosova NG, et al. Long-term antioxidant supplementation attenuates oxidative stress markers and cognitive deficits in senescent-accelerated OXYS rats. *Neurobiol Aging* 2006;27:1289-97.
  11. Liu M, et al. Antioxidant and antiproliferative activities of raspberries. *J Agric Food Chem* 2002;50:2926-30
  12. Panossian A, et al. Adaptogens exert a stress-protective effect by modulation of expression of molecular chaperones. *Phytomedicine* 2009;16:617-22.
  13. Walker AK, et al. Conserved role of SIRT1 orthologs in fasting-dependent inhibition of the lipid/cholesterol regulator SREBP. *Genes Dev* 2010;24:1403-17.
  14. Redman et al. Effect of Caloric Restriction in Non-Obese Humans on Physiological, Psychological and Behavioral Outcomes. *Physiol Behav*. 2008 August 6; 94(5): 643-648.
  15. Holloszy JO, Fontana L. Caloric restriction in humans. *Exp Gerontol* 2007;42:709-12. doi: 10.1016/j.exger.2007.03.009
  16. Walford, R.L., et al. Calorie restriction in Biosphere 2: Alterations in physiological, hematological, hormonal, and biochemical parameters in humans restricted for a two year period. *J Gerontol A Biol Sci Med Sci*. 2002 Jun;57(6):B211-24. 

BUILD MUSCLE AND STRENGTH WITH ISALEAN PRO



*Whey protein in high doses is best for aging muscles, according to new research.*

You may have heard, Isagenix has just launched new IsaLean Pro. The complete meal replacement featuring 35 grams of protein per serving serves as a solution to power greater muscle growth in athletes,

weekend warriors, or teens in sports. Research also suggests the extra whey could help people shed stubborn pounds including those from deadly visceral fat.

Now scientists report that these high doses of whey protein are ideal for helping older people stave off age-related muscle loss (1).

Scientists from Maastricht University Medical Center randomly assigned 33 elderly men (ages 71 to 75) to consume a single dose of 10, 20, or 35 grams of whey protein. They found that the individuals who consumed 35 grams of protein per meal significantly increased their rate of muscle protein synthesis compared to individuals consuming lower doses.

The study, published in the February issue of the *American Journal of Physiology, Endocrinology and Metabolism*, reported that 35 grams of whey protein led to higher circulating levels of amino acids in the



bloodstream compared to lower doses, which may explain the increased muscle protein synthesis from baseline.

Sarcopenia, or the loss of muscle with age, is thought to occur because of a blunted anabolic response and lower basal rate of muscle synthesis. The study suggests a diet higher in protein, especially from quality sources such as whey, may represent a viable way to stimulate muscle growth for preventing muscle loss in older adults. Eating more protein at breakfast and lunch may be especially beneficial since these meals are usually lower in protein in the typical American diet.

“Increasing the amount of protein at breakfast and/or lunch may represent an effective dietary strategy to...improve muscle mass preservation in older adults,” the researchers suggest.

Previously, the same research group found that whey protein stimulated more muscle protein synthesis in older men as compared to milk casein (2). Although the evidence is clear that whey protein supports higher levels of protein retention than casein, it had not been known whether retention was due to the quick digestion and absorption of whey proteins, or if the amino acid content of whey contributed to its muscle-promoting effects. Whey, for example, is characteristically higher in branched-chain amino acids compared with other protein sources.

To test the hypothesis that amino acid content played a role, the researchers included hydrolyzed casein protein, which is partially broken-down casein protein, to speed up the rate of digestion, to be similar to whey.

The researchers randomly assigned 48 healthy, older men to one of three protein groups. They received a 20-gram drink containing whey, casein, or casein hydrolysate protein. Plasma and muscle biopsies were taken over a period of six hours. The appearance, availability, and absorption of amino acids were measured for all three dietary groups.

Results from this carefully monitored study showed that both casein hydrolysate and whey increased amino acid pools earlier than the non-hydrolyzed casein proteins. However, the researchers report, “whey protein is more effective than casein and casein hydrolysate at promoting postprandial muscle protein accretion in healthy older men.”

While initial amino acid availability was similar between whey and casein hydrolysate, whey stimulated a higher net availability of amino acids to the bloodstream than either of the casein protein supplements over the six-hour time period. The researchers concluded that rate of absorption is not the only determining factor for after-meal muscle protein retention. A greater increase in plasma leucine concentrations

following whey protein intake is “in line with the suggestion that leucine forms a key factor regulating postprandial muscle protein synthesis.”

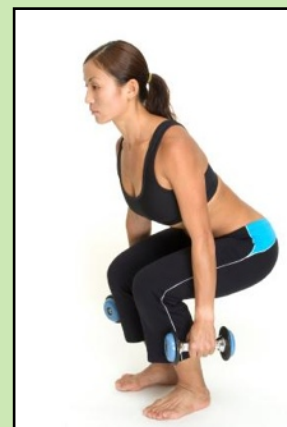
#### **IsaLean Pro is Best for Women, Too**

Whey protein may also be the most effective protein supplement when it comes to stimulating muscle protein synthesis and supporting bones in older women, according to researchers from the University of Illinois.

Research published in *The Journal of Gerontology* (3) suggests that a higher intake of quality protein promotes maintenance of lean muscle and reduced fat mass in elderly women.

The double-blind, clinical trial randomized 31 post-menopausal overweight or obese women to a reduced-calorie diet and moderate physical activity for six months with either a 25-gram whey protein or a carbohydrate supplement consumed twice daily. The researchers measured changes in body weight, fat mass, fat distribution, muscle strength, muscle accretion, leg strength, and other functional markers. This study found that the women on the diet supplemented with whey protein lost more weight and retained more muscle in comparison to women on the carbohydrate diet.

The authors wrote, “A higher intake [of protein] during caloric restriction maintains muscle relative to weight loss, which in turn enhances physical function in older women.”



*Whey promotes muscle synthesis in older women, better than other proteins, according to a new study.*

Women who are overweight and experiencing age-related muscle loss are almost four times more likely to have functional limitations than women of the same age with a healthy body weight. In the past, researchers have thought that weight loss in older women can reduce muscle mass and increase frailty. According to these results, however, “older adults consuming greater amounts of protein are less likely to lose lean mass over time.”


The study suggests that older women trying to lose weight can combat muscle loss by consuming a divided dose of 50 grams of whey protein daily. According to these results, higher protein, especially from calcium-containing whey protein, helps eliminate the decline in bone, muscle mass, and muscle strength typically seen with weight loss in the elderly.

These results are important in defining the recommendations for weight loss and dietary interventions that best meet the needs of overweight and obese older women. Shown as net gains in muscle and net losses of fatty tissue, the pairing of weight loss with a high quality protein supplement enhances not only weight loss, but overall body composition too.

The authors suggest that, “Losing some of the burden caused by overweight on the leg joints may help prevent injuries and furthermore help maintain physical independence with aging.”

The findings are a good bridge for further research into methods for sustaining muscle mass and physical function of women into old age.

### References

1. Pennings B et al. Amino acid absorption and subsequent muscle protein accretion following graded intakes of whey protein in elderly men. *Am J Physiol Endocrinol Metab* 2012;302:E992-E999.
2. Pennings B et al. Whey protein stimulates postprandial muscle protein accretion more effectively than do casein and casein hydrolysate in older men. *Am J Clin Nutr* 2011; 93: 997-1005.
3. Mojtahed MC et al. The effects of a higher protein intake during energy restriction on changes in body composition and physical function in older women. *J Gerontol A Biol Sci Med Sci* 2011. 


### INTRODUCING DR. STUART PHILLIPS

Stuart Phillips PhD, FACN, FACSM, is a professor of kinesiology at McMaster University in Ontario, Canada. His research involves the maintenance of metabolically active skeletal muscle mass, particularly where optimal health is concerned. He has co-authored six reviews and more than 10 primary papers related to skeletal muscle, whey protein, and exercise.

Dr. Phillips has written that skeletal muscle is largely unappreciated. His perspective is that maintaining skeletal muscle mass through quality protein and exercise during weight loss is key to reducing risk of chronic

disease. His views reflect that of the Isagenix Research and Science Team and Scientific Advisory Board Members such as Dr. Michael Colgan (see Page 10).

As Dr. Phillips puts it, “Skeletal muscle, besides its obvious role in locomotion, is a highly important thermogenic (i.e., energy consuming) tissue and the prime determinant of our basal metabolic rate, which for most of us is the largest single contributor to daily energy expenditure. Hence, declines in skeletal muscle mass can lead to increases in body fat mass. Because of its oxidative capacity (i.e., mitochondrial content) skeletal muscle is also a large site of fat oxidation,

potentially playing a role in maintaining lipoprotein (cholesterol) and triglyceride homeostasis.” 



Stuart Phillips, Ph.D

DR. PHILLIPS DISCUSSES SUPERIORITY OF WHEY PROTEIN FOR MUSCLE



*Dr. Phillips calls whey superior over soy for muscle.*

Skeletal muscle is the tissue of action, movement, force, and function. Unfortunately, time takes a toll on bodies and on muscle mass. The combination of perceived energy decline, decreased physical activity, and a blunted response for muscle growth (“anabolic resistance”) forms the association between aging and a loss in muscle mass.

Sustaining this important tissue is a battle that Dr. Phillips has dedicated his career and his research to explore. On April 25, Dr. Phillips presented a comprehensive review of the research on dietary protein and aging at Experimental Biology 2012, in San Diego. The conference is an annual event where six scientific societies hold their joint scientific sessions and yearly meetings.

Deeming whey as the frontrunner in the race for the optimal protein supplement for aging adults, Dr. Phillips explained that whey’s muscle-retaining benefits are clearly superior to those offered by soy (and other protein sources).

Whey protein, he said, is uniquely superior for muscle stimulus and retention. Concluding his inquiry into protein for healthy aging, Dr. Phillips explains that protein quality, quantity, and timing act synergistically to aid in the pursuit for long-term quality of life.

Isagenix caught up with Dr. Phillips at the event and afterward to gain more insight from his research. Taking a few moments to share the fruits of his pursuits, Dr. Phillips tips his hat to whey protein:

*Isagenix: What first interested you in studying the effects of protein on muscle?*

Dr. Phillips: I was an athlete all my life playing hockey, football, rugby, and enjoying everything from swimming to triathlons. So muscle has always been near and dear to my heart (no pun) and my passion. I don’t compete in sports much anymore except with my wife and my three boys (13, 10, and 7), who are my stiffest competition yet! So now it’s about staying healthy, active, and maintaining my muscle mass, strength, and health. High-quality protein is a big part of that.

*Isagenix: Can you explain anabolic resistance in aging? How does it relate to sarcopenia?*

Dr. Phillips: Anabolic resistance is, as we define it, the inability of skeletal muscle in aged persons to mount a full protein synthetic response similar to that seen in the young. In other words, older people just don’t put the protein they eat into their muscles as efficiently as young people. That means as we age our muscles gradually begin to make less protein so our muscle mass declines, otherwise called sarcopenia.

*Isagenix: Based on your research, how does whey compare to other proteins like soy for building muscle?*

Dr. Phillips: Soy is an excellent high quality protein as its PDCAAS (protein-digestibility corrected amino acid score) would suggest. In fact, if you use the PDCAAS scoring system the way it’s used now, then isolated soy is the ‘same’ as whey and casein. In reality, however, whey is a superior protein for repairing and gaining muscle, which is something we’ve shown in several studies now (1-4). In fact, milk proteins in general are better than soy for promoting lean mass, or muscle, gain (2; 3).

*Isagenix: Why does the evidence suggest whey protein is superior to soy (or other proteins) in aging adults for promoting muscle gains or holding on to muscle?*

Dr. Phillips: Our work, and that of other research groups also, suggests that it’s the high leucine content of whey protein, which is an amino acid highly stimulatory for muscle protein synthesis and muscle growth. That along with all of the other ‘essential’ (i.e., we need to eat them because we cannot make them ourselves) amino acids are

present in just the right quantities to support an optimal rate of protein accretion.

*Isagenix: How do higher doses of whey protein help overcome anabolic resistance in aging to slow/reverse sarcopenia?*

Dr. Phillips: We're not entirely sure, but we're proposing that as people age their muscles become desensitized to the effects of the amino acid leucine. However, if you consume higher quantities of protein or you consume proteins higher in leucine like whey, then you 'overcome' (or at least minimize) the anabolic resistance of aging and slow sarcopenia. I'd never say you could reverse sarcopenia, but good food choices and good high-quality proteins, along with physical activity, are a big part of slowing it down.

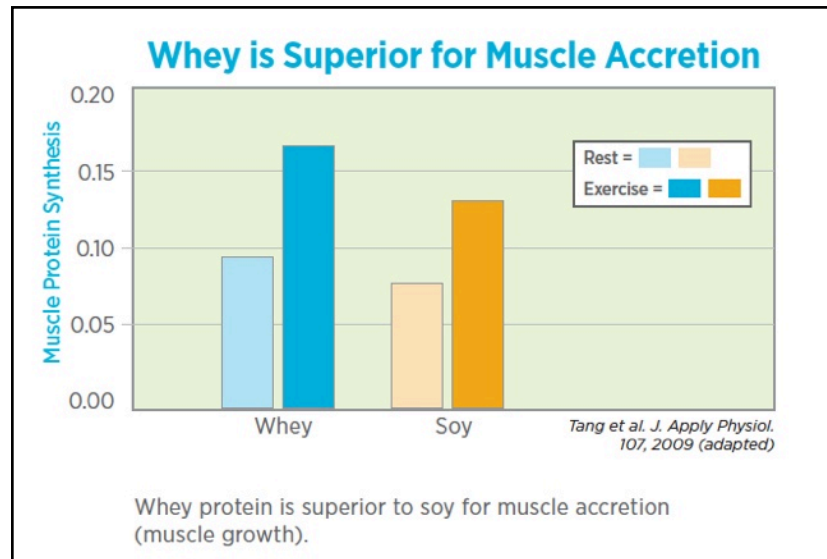
*Isagenix: Why is it important to distribute large doses of protein throughout the day?*

Dr. Phillips: We've conducted two dose-response studies in young men after resistance exercise (5), and recently in older men with their muscles at rest and also following resistance exercise (6). The young men require 20 grams of protein to maximally stimulate new muscle protein addition to their muscles whereas the older men needed more protein, double the dose in fact, or 40 grams, to achieve a maximal stimulation.

*(Editor's note: Recently, Maastricht University researchers found that 35 grams of whey protein also showed significant increases in muscle protein synthesis compared to 20 grams or 10 grams in older men.)*

Thus, if we think about getting this maximal stimulation throughout the day, then what we want to have happen is that we should eat, if we're young, 20 grams of protein per meal and 40 grams per meal if we're older. Currently, North Americans consume protein in a very imbalanced fashion with about 6 grams coming at breakfast, 12 grams at lunch, and 60 grams at dinner; that's not the best way to hang onto your muscle mass.

*Isagenix: How does exercise play a role in helping overcome anabolic resistance?*



Dr. Phillips: Exercise brings back the sensitivity that is lost as we age. In a sense, exercise, for a short-time, 'reverses' aging. In fact, what it really does is reverse the effects of inactivity, but oftentimes aging and inactivity are one and the same. So even aged muscle, when exercised, becomes sensitive to leucine and other amino acids again.

*Isagenix: What would you suggest to older people as a way for them to help hold on to muscle with age?*

Dr. Phillips: 1) Exercise and get some form of physical activity every day; 2) Consume protein at levels higher than the current RDA; 3) Consume three equal protein-containing meals throughout the day with at least 20 to 40 grams of high-quality protein; 4) it should maybe go without saying, but fruits, vegetables, and dietary fiber are also important – I like the DASH [eating plan], for example, but with more protein.

#### References (as supplied by Dr. Phillips)

1. Burd NA, et al. Greater stimulation of myofibrillar protein synthesis with ingestion of whey protein isolate v. micellar casein at rest and after resistance exercise in elderly men. *Br J Nutr* 1-5, 2012.
2. Hartman JW, et al. Consumption of fat-free fluid milk after resistance exercise promotes greater lean mass accretion than does consumption of soy or carbohydrate in young, novice, male weightlifters. *Am J Clin Nutr* 86: 373-381, 2007.



3. Josse AR, et al. Body composition and strength changes in women with milk and resistance exercise. *Med Sci Sports Exerc* 42: 1122-1130, 2010.
4. Tang JE, et al. Ingestion of whey hydrolysate, casein, or soy protein isolate: effects on mixed muscle protein synthesis at rest and following resistance exercise in young men. *J Appl Physiol* 107: 987-992, 2009.
5. Moore DR, et al. Ingested protein dose response of muscle and albumin protein synthesis after resistance exercise in young men. *Am J Clin Nutr* 89: 161-168, 2009.
6. Yang Y, et al. Resistance exercise enhances myofibrillar protein synthesis with graded intakes of whey protein in older men. *Br J Nutr* 1-9, 2012.




---

 ENJOY THE SUN AND HEALTHIER SKIN WITH ISAGENIX


*Safe sun exposure and five Isagenix products can keep skin looking youthful and vibrant.*

In honor of Skin Cancer Awareness Month, pay attention to your health by maintaining your skin. With more than two million Americans diagnosed with skin cancer every year, and numbers on the rise for youth, now is not the time to feel the burn. Seeking shade and wearing wide-brimmed hats and protective clothing are the first lines of defense against a scorching summer.

Diving into skin protection early may keep elasticity and ensure your skin is always looking radiant. Along with protective sunscreen, diet can be a pre-emptive measure to promote your skin's elastic tone and offset ultraviolet (UV) exposure. In line with the current research, here are five Isagenix tips for healthier, younger-looking skin this summer:

### 1. Slather on the Isa Sunguard SPF 30

Nothing beats sunscreen for protecting skin against sun damage. High exposure to UV radiation causes increased oxidative stress, DNA damage, and higher levels of inflammation. But buyer-beware, not all sunscreens on the shelf are created equal. A sunscreen may not protect against both UVB and UVA rays; and a high SPF (sun protective factor) does not necessarily mean that you get a huge increase in protection. For example, jumping from SPF 30 to SPF 50, lends approximately 1 percent of additional protection. Also, with a higher SPF rating, you may be exposed to considerably more chemical UV absorbers (SPF ratings only guard against UVB radiation, not UVA) and synthetic hydrocarbons that could easily penetrate the skin producing potentially harmful endocrine-disrupting activities.

The estrogen-mimetic oxybenzone can be found in more than half of all beach and sport sunscreens currently on the market (1). Rest assured, Isa Sunguard offers protection using natural minerals (zinc oxide and titanium dioxide), leaving the concerns for chemical toxicity behind. Mineral-based sunscreens are the top choice for sun and consumer protection because they remain stable in sunlight without the threat of dangerously seeping into the skin, and still offer protection from the deepest-penetrating UVA rays—something sorely lacking in most available sunscreens.

### 2. Enjoy IsaDelight Plus Chocolates

It's long been known that skin health depends on both exogenous (external; i.e. sunscreen) and endogenous (internal; i.e. nutritional) factors.



Ignoring one, or both, of these factors can lead to dehydrated skin—causing flakiness, scaling, wrinkles, and excessive roughness.

To counter this, antioxidants such as the polyphenols found in chocolate and green tea can boost skin quality and provide some antioxidant protection from UV rays. British researchers found that daily ingestion of 20 grams (one IsaDelight Plus is 11.4 grams) of a chocolate high in polyphenols—the darker the better—led to better protection from UV rays that age skin prematurely (2). Additionally, German researchers found that after just 12 weeks of green tea polyphenol consumption, women had greater protection from UV rays along with an improvement in skin density, appearance, and hydration (3).

### 3. Get IsaFruits and Isagenix Greens!

Youthful skin is not just about protection from the sun, but also protection from water loss, wrinkles, and toxic build up beneath the skin surface. The secret could be to improve microcirculation. With an active metabolism, skin cells thrive with adequate circulation due to ample access to oxygen and nutrients for cell growth and repair.

It may be no surprise that this efficiency is greater in people who consume nutrient-rich fruits and vegetables. Don't feel too bad if you fail to fill up on whole fruits and vegetables all the time—a fruit- and vegetable-based concentrate may also do the trick. German researchers found that healthy men and women supplementing with a fruit and vegetable juice powder for three months, increased skin microcirculation improving the skin's texture and structure when compared to a placebo (4).

### 4. Get fish oil from IsaOmega Supreme

Fish oil may be the essential nutrient for every beach get-a-way. Research has deemed omega-3 fats as positively protective when it comes to sun radiation. Stimulating pathways that oppose UV-induced oxidative stress, these long-chain fatty acids act against photoaging (5). Photoaging is characterized by a degradation of collagen and elastin networks—the foundation our skin's appearance.

### 5. Supplement with the "sunshine vitamin"


The sun's rays catalyze the reaction and spur the conversion of vitamin D from the skin to the active form used by the body. To find the common, healthy

ground between a bronzed tan, beautiful skin, and natural vitamin D sufficiency, it may be wise to dose up on oral vitamin D. Wearing sunscreen blocks nearly all natural conversion of vitamin D and research has found that casual sun exposure, even in the summer, is not sufficient for most people to achieve optimal blood levels (6). Nevertheless, sunscreen is always important, especially in the summer months for keeping skin hydrated, stopping the burning sun beams, and fighting age-accelerating skin damage. When focusing on protecting your complexion, in the interest of skin, bone, and muscle health—don't forget to fill up on vitamin D.

### Healthier Skin with Isagenix

Preparing for the summer heat goes beyond bikinis and gym memberships. In truth, the difference between a sun tan and a sun trauma may come down to both your habits in the sun and your diet. Take heed from the research (not to mention sunburns past) and "swim" through summer with optimal sun and skin protection from Isagenix.

### References

1. Environmental Working Group. "Sunscreens Exposed: Nine Surprising Truths." 2012.
2. Williams S, et al. Eating chocolate can significantly protect the skin from UV light. 2009;8:169-73.
3. Heinrich U et al. Green tea Polyphenols Provide Photoprotection, Increase Microcirculation, and Modulate Skin Properties of Women. *J Nutr* 2011; 141: 1202-8.
4. De Spirt S, et al. An Encapsulated Fruit and Vegetable Juice Concentrate Increases Skin Microcirculation in Healthy Women. *Skin Pharmacol Physiol* 2012; 25:2—8.
5. Pilkington SM et al. Omega-3 polyunsaturated fatty acids: photoprotective macronutrients. *Experi Derma* 2011; 20:537-543.
6. Godar DE et al. Solar UV Doses of young Americans and Vitamin D<sub>3</sub> Production. *Environ. Health Perspect.* 2012; 120:139-143. 

DEPRESSING BODYFAT: LOOK TO YOUR PROTEINS

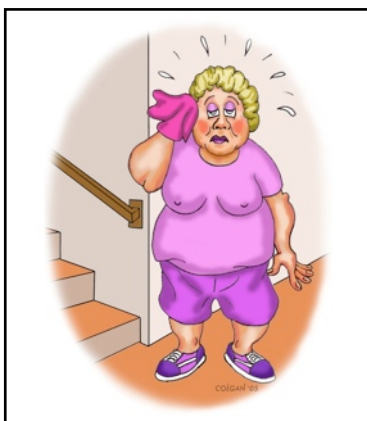
by Michael Colgan,  
Ph.D.

Popular articles often judge dietary proteins by comparing their ability to promote muscle protein synthesis. This one-eyed focus leads many people to believe that proteins are simple foods, and building muscle is their most important, if not their only, function. This belief is entirely false.

The amino acids that make up proteins have been evolving on Earth for more than two billion years, and are far and away the most complex foods we eat (1). Twenty-first century molecular biology shows that we still have a lot to learn about them. Some school texts still state, for example, that only eight of the 21 amino acids in human proteins are essential. In the last few years of science that number has grown to 17, although some oxymoronic folk still call the nine new ones “conditionally essential” (2,3).

We should have realized long ago how complex proteins are from how complex we are. Scientists have known for a long time that half the dry weight of the human body is proteins, more than 100 thousand different proteins (4). Each one is made to precise specifications from our genetic code. They do more than a million different jobs every day. Each one is manufactured from the amino acids in the proteins that you eat.

Titin, for example, is our longest protein. It enables muscles to contract optimally. Titin is 34,500 amino acids long, all in precise sequence. If even one amino acid is missing, or in the wrong place in the sequence, titin does not work properly, and muscle contraction does not work optimally. If you can't gain muscle and strength the way you should, check the quality of your dietary proteins. Even the hemoglobin that carries your oxygen is a protein.



*“I’m circumferentially challenged.”*

If you are panting like a grampus trying to train for that marathon, check the quality of your dietary proteins.

Proteins form your whole structure and control every move you make. The structure of your eyes and brain is mainly proteins. The brain activity and the vision you are using right now to read this page is precisely controlled by thousands of different enzymes—and all enzymes are proteins. If you are having trouble following this, check the quality of your dietary proteins.

The big point is that the quality of the proteins you eat determines the quality of the proteins that compose your body. If you eat garbage proteins you will grow a garbage body, because you are failing to give your genome the construction materials it needs to express its power. Before you bite into that yummy chilidog, remember that its inferior protein will grow into your muscles, organs, and brain, and you will have to live with it for the next six months.

If you eat pizza you will grow a pudgy pizza body, no matter what else you do for your health. If you eat burgers, you will grow a bloated burger body. You see them all waddling down the mall. That guy is definitely a Burger King, and there go a couple of Taco Bells and a Pizza Hut... You get the picture. You will grow a body structure with shape, movement, and mind that portray the quality of the dietary proteins from which they are built.

The best dietary match we have found for human proteins is undenatured whey protein concentrate. If anyone has a better match, with controlled scientific evidence to prove it, I would love to learn of it. Undenatured whey protein from range-fed cows is not a simple food. It consists of eight different proteins, each composed of 21 amino acids, each with different effects on the human body.

Like range-fed meats and wild fish, but better, undenatured whey proteins contain the right combinations of the amino acids for human proteins, complete with numerous peptides encrypted into amino acid sequences (“keys” that open gene expression “locks” in our DNA code) and encrypted bioactive immune factors too (5). Only intact proteins work properly. Any way we meddle with them with our simian fingers, we mess them up.

When we leave them intact, these complex proteins influence many more bodily processes than muscle growth. They regulate glucose metabolism, lipid metabolism, bone metabolism, blood pressure, enzyme function, immune function, brain function, consciousness, emotions, sleep, appetite, food intake, and body weight (6). They are a boon to health.

I will take a quick romp through a few research papers representative of the literature on overweight, the worst health problem in America, caused mainly by our simian fingers messing with the food supply. The human body was not designed to be overweight. Our DNA code can't handle it. The current situation of overweight in America, especially in children, predicts a tsunami of disease in which parents who remain fit and trim will outlive their offspring (7). Simply owning excess body fat causes simultaneous disorders of insulin, glucose, lipids, blood pressure, heart function, pancreatic function, kidney and liver function, brain function, and emotions (8-10). These disorders work together to make you chronically sick, exhausted, and depressed.

We have so messed up the food chain that people fighting to lose bodyfat need any help they can get. I am happy to be able to share some of the recent discoveries on whey protein concentrate, findings of its benefits for appetite, food intake, insulin and blood sugar levels, blood lipids, emotions, and cognition.


Calorie for calorie, whey protein increases satiety (appetite satisfaction) more than any fat or carbohydrate (8-10). Whey also has a larger influence than any other protein on amino acid levels and patterns in the brain. These changes in the brain induce satiety and result in reduced food intake (8-10). Whey protein concentrate also raises brain levels of amino acids that regulate areas of the hypothalamus to reduce food cravings (8-10). Whey reduces food intake in human subjects to a greater extent than casein, eggs, or soy (9-11).

You digest whey proteins more rapidly than casein, egg, meat, fish, or vegetable proteins. This effect potentiates insulin release, increases glucose uptake by tissues, and reduces blood sugar levels more than other proteins (11,12).

Big bonus: whey protein raises brain serotonin levels and improves mood, at least as well as some antidepressants, and with zero side effects (13). It

also improves cognition (14). Getting your proteins from undenatured whey can make you leaner, happier, and smarter.

## References

1. Chernikova D, et al. A late origin of the extant eukaryotic diversity: divergence time estimates using rare genomic changes. *Biol Direct*, 2011 May 19;6:26.
2. Fürst P, Stehle P. What are the essential elements needed for the determination of amino acid requirements in humans? *Journal of Nutrition*, 2004;134 (6 Suppl):1558S-1565S.
3. Reeds PJ. Dispensable and indispensable amino acids for humans. *J Nutr* 2000;130 (7):1835S-40S
4. Colgan M. *Optimum Sports Nutrition*. New York: Advanced Science Press 1993.
5. Colgan M. *The Anti-Inflammatory Athlete*. Vancouver: Science Books, 2012.
6. Graf S, et al. Effects of whey protein supplements on metabolism: evidence from human intervention studies. *Curr Opin Clin Nutr Metab Care* 2011 Nov;14(6):569-80.
7. Moore SE, Anderson GH. Dietary proteins in the regulation of food intake and body weight in humans. *J Nutr* 2004;134:974S-9S.
8. Bremer AA, et al. Toward a unifying hypothesis of metabolic syndrome. *Pediatrics* 2012 Mar;129 (3):557-70.
9. Luhovyy BL, et al. Whey proteins in the regulation of food intake and satiety. *J Am Coll Nutr* 2007;26:704S-12S.
10. Corredig M, (ed). *Dairy-derived ingredients: food and nutraceutical uses*. London, United Kingdom: Woodhead Publishing, 2009.
11. Hall WL, et al. Casein and whey exert different effects on plasma amino acid profiles, gastrointestinal hormone secretion and appetite. *Br J Nutr* 2003;89:239-48.
12. Claessens M, Saris WH, van Baak MA. Glucagon and insulin responses after ingestion of different amounts of intact and hydrolysed proteins. *Br J Nutr* 2008;100:61-9.
13. Markus CR, et al. *Am J Clin Nutr* 2000 Jun;71(6): 1536-44.
14. Markus CR, et al. *Am J Clin Nutr* 2002 Jun;75(6): 1051-6. 

ONLY 1 IN 5 SUNSCREENS ARE SAFE



*Mineral-based sunscreens are safest, EWG reports.*

The Environmental Working Group (EWG) has just issued its 5th annual guide to sunscreen products and reports that, out of 600 beach and sport sunscreens, only one in five are safe.

Sunscreens are meant to protect our skin cells from harmful UVA and UVB radiation. Unfortunately, the jury is still out on exactly what benefit these bottled creams can deliver. The sun not only penetrates the skin, it may penetrate and degrade your sunscreen—unleashing harmful free radicals on the surface of your skin that may end up causing more harm than help.

Although Isagenix may not entirely agree with EWG’s methodology, the new report deserves high marks for bringing natural minerals to the forefront as having the “best safety profile of today’s choices.”

While no sunscreen beats shade and clothing, zinc and titanium offer broad UVA and UVB protection without threatening to decay beneath the sun’s rays. With little risk of toxicity or skin penetration, the EWG hails these two ingredients as superior to the

chemical concoctions most sunscreens tend to offer.

**Sunscreens to Avoid**

In contrast, the group recommended against use of the following due to lack of safety:

- Sunscreen sprays because of possible inhalation of chemicals
- Sunscreens containing retinyl palmitate because they may contribute to free radical formation
- Sunscreens containing oxybenzone, a known hormone disrupter. The EWG’s findings show that oxybenzone is present in nearly 60 percent of sunscreens on the market in the United States.
- Sunscreens with poor UVA protection. Too many sunscreens protect only against UVB “burning” rays, but not UVA “aging” rays of which are principally responsible for skin aging, oxidative stress, and contribution to skin cancer.
- Sunscreens that offer a false sense of security such as “water proof,” or “sweat proof.” These claims can be misleading.

**Go with Minerals**

Sunscreens that contain the natural minerals zinc or titanium such as Isa SunGuard lead the way in consumer safety and sun protection. These natural sun-blocking minerals make it easier to avoid chemicals that EWG has said may disrupt hormones in the body. “Unlike other common sunscreen chemicals, zinc and titanium are not allergenic, do not break down in sunlight and do not disrupt the body’s natural hormones” according to the

**ISAGENIXSCIENCE**

**Managing Editor**

David Despain, M.Sc.  
Senior Manager of Science Communications

**Editorial Board**

Suk Cho, Ph.D.  
Chief Science Officer  
Janet Myers, Ph.D.  
Director of Product Innovation  
Eric Gumprich, Ph.D.  
Research Scientist

**Contributors**

Michael Colgan, Ph.D.  
Sara Richter  
Amanda Jensen

[www.isagenixhealth.net](http://www.isagenixhealth.net)

report.

Natural minerals zinc and titanium, when combined, offer broad-spectrum protection against both UVA and UVB rays.

Gaps in both the regulations and the research have led consumers down a confusing path when it comes to differentiating between sunscreens. The EWG fills the void when governing bodies aren’t willing to set substantial recommendations and regulations on sunscreen ingredients and their effectiveness.

Isa SunGuard is an all-natural sunscreen with minerals and quality ingredients including green tea and chamomile. With a strong commitment to scientific support, the formulation of Isa SunGuard contains zinc oxide and titanium dioxide and provides maximal protection against UVA and UVB rays.

**Reference**

Environmental Working Group. “Sunscreens Exposed: Nine Surprising Truths.” 2012. 