

Natural Products **Insider**[®]

Vol. 12, No. 8 August 2022

naturalproductsinsider.com US\$20.75

Healthy aging

.....
The longevity paradigm



SupplySide[®] WEST

PRESENTED BY



KSM-66
Ashwagandha[®]

WORLD'S BEST ASHWAGANDHA



Food ingredients
North America

Show Dates:

October 31 – November 4, 2022

Expo Hall:

November 2 & 3, 2022

Mandalay Bay, Las Vegas, NV

Join us for the Education Session:

Desire for healthy aging driving the personalized nutrition market

Tuesday, November 4 | 1-4pm

Learning Objectives:

- + How consumer desire for a healthy life span is driving the growth of personalized nutrition solutions
- + Nutrition, genomic and microbiome testing and their role in supporting healthy aging
- + The critical role of ingredient science to help formulators develop the right solutions to address traditional "aging" conditions
- + Product development and go-to-market strategies

Add this session to your pass when registering!

See all of our education sessions at supplysidewest.com/schedule

Register



5

Viewpoint: Go long!

Nutrition is at the heart of the longevity movement, submits **Duffy Hayes**, which is redefining the healthy aging space and making it truly multigenerational. People across all age ranges are playing more of the long game when it comes to their health.

7

Ingredients for improved longevity

Joanna Cosgrove details a new longevity approach to healthy aging—promotion of a balanced lifestyle plus a spectrum of ingredients that strategically targets oxidative stress, inflammation, cognitive function and muscular/skeletal issues.

15

Maximum mobility: Ingredients aimed at active nutrition

A new group of supplement consumers hopes to mitigate muscle loss, gain strength through exercise, and have energy before, during and after workouts, in addition to adopting an active pattern of nutrition, describes **Danielle Rose**.

21

Collagen and healthy aging: A key factor to unlocking the body's regeneration codes

Skin quality and elasticity, joint health, flexibility, physical performance, brain health, cognition and immune function top the list of concerns aligned with collagen's potential impact, writes **Monet Euan**.

30

Ingredient quality affects blood sugar management, healthy aging

Maintaining healthy blood glucose levels is highly recommended to support one's inner defense system, explains BENE0's **Anke Sentko**, and low-glycemic functional ingredients can have a role in boosting immunity long term.

34

Healthy aging formulation and trends

The shifting perception of age requires a recognition of new trends, contends **Danielle Rose**, including appreciation for innovation and an understanding of the ingredients behind what it means to age well.

42

Supplement formulation and healthy aging

Avoid an "everything but the kitchen sink" approach when it comes to nutritional products for the healthy aging space, suggests Lief Labs' **Charles DeVos**, and opt instead for a focused and effective strategy targeting a few key areas.

46

Proactive prevention: Looking to the future of supplements for seniors

Marketing strategies that work for mass audiences may be less effective with seniors because they have a unique set of needs and values, writes MarketPlace's **Jon Copeland**.



Copyright © 2022 Informa Markets. All rights reserved. The publisher reserves the right to accept or reject any advertising or editorial material. Advertisers, and/or their agents, assume the responsibility for all content of published advertisements and assume responsibility for any claims against the publisher based on the advertisement. Editorial contributors assume responsibility for their published works and assume responsibility for any claims against the publisher based on the published work. Editorial content may not necessarily reflect the views of the publisher. Materials contained on this site may not be reproduced, modified, distributed, republished or hosted (either directly or by linking) without our prior written permission. You may not alter or remove any trademark, copyright or other notice from copies of content. You may, however, download material from the site (one machine readable copy and one print copy per page) for your personal, noncommercial use only. We reserve all rights in and title to all material downloaded. All items submitted to Natural Products Insider become the sole property of Informa Markets.



Nature's Premier Collagen and Hyaluronic Acid Matrix

NOT ALL COLLAGENS ARE ALIKE

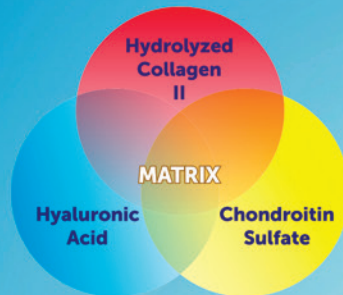
BEAUTIFUL SKIN



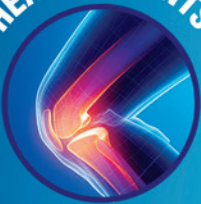
BioCell Collagen® Clinical Dosage: 1g daily

- Reduces facial lines and wrinkles*
- Reduces crow's feet*
- Improves skin elasticity*
- Reduces skin dryness*
- Boosts skin collagen & hyaluronic acid*

UNIQUE SYNERGISTIC INGREDIENT



HEALTHY JOINTS



BioCell Collagen® Clinical Dosage: 2g daily

- Promotes joint comfort and mobility*
- Promotes cartilage health and stimulation*
- Promotes synovial fluid health*
- Boosts hyaluronic acid
- Promotes post-workout recovery* (3 g)



Interested in learning more about new scientific studies behind this unique ingredient, please call 714.632.1231 or visit:

www.biocelltechnology.com

BioCell Collagen™ variously in name and/or design, are trademarks of BioCell Technology, LLC, and are registered in the United States and other jurisdictions. (Pat: <https://www.biocellcollagen.com/patents>) © 2021 BioCell Technology LLC. All rights reserved.

* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

Go long!

Healthy aging as a category, of course, has seniors in its sights—lots of data backs the idea that the world is getting older, and consequently, reaching an aging population is still a solid strategy for supplement brands manufacturing products that support better brain, joint and heart health, among other areas.

But the more nuanced conversation about longevity—and improving the quality of one’s aging—is something that offers broader appeal and folds in a younger demographic.

As is happening in a number of other supplement categories, pros in healthy aging are recognizing that even the younger set seeks sharpened cognitive performance, improved cellular aging and DNA integrity, healthy skin and microbiomes, better sleep and vision, and a break from inflammation.

If you can upgrade someone’s personal longevity plan and address those factors no matter their age, you’ve likely got a customer for life.

Another evolving reality is the growing understanding of nutrition’s central role in longevity. The ability to “tilt in your favor”—as one of our contributors put it—the quality of a person’s aging with a healthy diet and a more active lifestyle is a message that resonates across both young and old demographics.

Vitamins, minerals, micronutrients and botanical ingredients—and our growing understanding of their mechanisms of action through clinical study—play central roles in any nutrition plan aiming to impact longevity. You can find dozens of examples in the pages that follow, and the corresponding research that backs the claims.

Those claims are critical to the new healthy aging customer paradigm, which has a fine focus on longevity.

Today’s supplement customers are notoriously curious, more dubious of claims, able to better filter out junk science, and more difficult to reach—but they can also be extra loyal (and willing to share their experiences with others) if convinced about efficacy.

That is the overriding challenge quality supplement brands face when making a longevity play. It’s also one I know this industry is capable of meeting head on.

Live long and prosper,

Duffy Hayes
Associate editor

duffy.hayes@informa.com

[linkedin.com/in/duffy-hayes-21206747/](https://www.linkedin.com/in/duffy-hayes-21206747/)



Healthy aging in session!

The SupplySide West show at the Mandalay Bay in Las Vegas is coming up, and at least one educational session will be taking on the multifaceted healthy aging market. The session “Desire for healthy aging driving the personalized nutrition market” will happen **Tuesday, Nov. 1, from 1 p.m. to 4 p.m.** Presenters will be taking a hard look at the critical role of ingredient science to help formulators develop new solutions for the category, among other issues.

[Click HERE for more](#)



Live a vibrant life not just a long life

 **BacoMind™**

Supports Memory


Magtein®

*Clinical Support for
Cognition & Memory*


Turmacin™

*Pain Relief
& Joint Support*

AIDP

Your Trusted Partner

aidp.com   

*These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.



Ingredients for improved longevity

by Joanna Cosgrove



Aging is unavoidable. However, improving one’s healthy longevity is entirely attainable with a balanced lifestyle plus a spectrum of ingredients that strategically target oxidative stress, inflammation, cognitive function, muscular/skeletal issues and other concerns that can potentially undermine long-term health.

“The quality of your aging is something you can tilt in your favor,” commented Lindsay Cole, brand manager, Natures Crops International, a producer of Ahiflower oil. “If addressed thoughtfully and consistently through a healthy diet and active lifestyle, many of the outward signs of unhealthy aging can be mitigated or reversed.”

Thwarting inflammation

Inflammation contributes to a variety of conditions that can be detrimental to healthy aging. Cole asserted that the typical Western diet of saturated fats, industrial cooking oils, refined sugars and grains, and salt adds to the pro-inflammatory aging burden and as result, many people struggle with cascading conditions like weight gain, blood pressure/glycemic challenges, fatigue, joint and skin issues.

Omega fatty acids can provide broad-spectrum help. “Taking in rich omega-3 sources helps the body balance out excessive pro-inflammatory influences in our diets and environments; omega-3s are critical for maintaining cell membrane permeability, porosity, integrity and inflammation-resolving functions which cumulatively drive how the body ages and how well we respond to all of life’s stressors,”¹ she said. “Omega-3s are now known to potentiate and balance the gut microbiome and its ability to digest and assimilate the foods we eat, [having] major effects on the gut-brain axis and therefore on our daily mood, outlook, energy levels and overall mental well-being.”

Fatty acids, in the form of omega-6 and omega-3, are important structural components of cell membranes and serve as [precursors](#) to bioactive lipid mediators. Long-chain omega-3 polyunsaturated fatty acids ([PUFAs](#)) also exert anti-inflammatory effects.¹

Ahiflower oil—while not a direct source of omega-3 EPA (eicosapentaenoic acid) or DHA (docosahexaenoic acid)—converts to circulating EPA. Emerging science is showing how dietary intakes



of precursor plant-based omega-3 results in similar tissue DHA maintenance in the brain as from supplemental DHA.²

Research has also confirmed a link between oxidative stress and cellular signaling proteins called sirtuins, chiefly the “longevity gene” known as sirtuin 1 (Sirt1). “Sirt1 in humans is believed to improve healthy aging and longevity through a variety of biological pathways related to oxidative stress, inflammation, metabolism, immune health and cognition,”³ explained James Roza, chief scientific officer, Layn Natural Ingredients. “Studies involving calorie restriction, exercise, resveratrol and urolithin A—which is formed from ellagic acid in the microbiome—have all been shown to activate Sirt1.⁴ By increasing Sirt1 expression, mitochondrial function is improved, autophagy (the ability for cells to remove waste) is more efficient, and oxidative stress is reduced.”^{5,6}

Roza pointed to the root of *Polygonum cuspidatum* (Japanese knotweed) as a source of both the antioxidants resveratrol and ellagic acid, which is converted to urolithin A in the microbiome.^{5,6} Urolithin A has been shown to improve mitochondrial function, and reduce inflammation and glycation associated with a few age-related conditions such as muscle dysfunction and cardiovascular disease.^{5,7,8,9}

Layn also markets SophorOx, a quercetin ingredient that promotes mitochondrial biogenesis, wellness and efficiency through the attenuation of reactive oxygen species (ROS) produced by oxidative stress.⁹ Initial research confirming SophorOx’s role in the improvement of several key biomarkers measuring oxidative stress have even given rise to a human study.

Bioenergy Life Science (BLS) has used mitochondria as a springboard for its line of branded ingredients. “Scientists have started to realize that the common cause behind both aging and disease is mitochondrial dysfunction, which is another way of saying that both aging and disease are driven by low metabolism,” commented the company’s Marianne McDonagh, VP of sales.

BLS’ RiaGev is a patented bioenergy ribose and nicotinamide formula for increasing NAD (nicotinamide adenine dinucleotide), ATP (adenosine triphosphate) and GSH (glutathione) simultaneously.¹⁰ Test subjects showed less fatigue, improved mental concentration and motivation.

Quercetin has been studied for its anti-inflammatory effects and impact on areas such as immune, cardiovascular, bone and joint health.¹¹ NutriScience Innovations, supplier of SunActive IsoQ, a highly bioavailable quercetin precursor, is both soluble and bioavailable for a high absorption at a low dose—ideal for formats like beverages.¹²

The ingredient’s bioavailability, explained Michael Lelah, Ph.D., NutriScience’s chief science officer, was achieved in partnership with Taiyo International. In a clinical study comparing intake of the branded and regular quercetin, he noted, “At six hours, blood quercetin levels were 25 times higher in study participants taking SunActive IsoQ.”¹³

Supporting mental acuity

Staying mentally sharp is another age-related challenge. BacoMind, a branded *Bacopa monnieri* from Natural Remedies, is marketed to support cognitive functions like memory, attention, learning and focus. According to Laurentia Guesman, business manager, food and supplement ingredients at AIDP, the exclusive North American distributor of BacoMind, the product has three modes of action: neuroprotection, dopamine preservation and serotonin preservation.¹⁴

A randomized clinical trial affirmed BacoMind's ability to enhance both long- and short-term memory recall, as well as promote memory acquisition and retention in middle-aged and senior adults.¹³ Another placebo-controlled study divided 65 healthy adults ages 50-75 into two groups, one of which took BacoMind (450 mg/d) while the other took a placebo.¹⁴ Compared to the placebo, BacoMind enabled participants to achieve several statistically significant improvements, including improved attention and verbal memory.

According to Guesman, AIDP's No. 1 cognitive support ingredient, Magtein, also supports cognitive health across myriad conditions. One of the ingredient's most recent published studies highlights the benefits of Magtein for stress and anxiety—a bonus for the broader cognitive market.¹⁵

Improving mobility



Aches and pains are another unwelcome reminder of advancing age.

Mark LeDoux, CEO and chairman of Natural Alternatives International (NAI), is an advocate of early-in-life nutrient intervention to ensure the adequate intake of key nutrients such as fatty acids and specific vitamins such as B12 and folate (B9) to thwart issues that crop up later in life. “[Age-related] weight loss and loss of muscle mass have been shown to precede cognitive decline, taking us full circle back to nutritional interventions and supplements to ensure adequate nutrient intake and a focus on maintenance of the musculoskeletal system,” he said. “Specific nutrients, such as NAD+ and carnosine, have been examined for their impacts on the aging process in the past, and research continues to demonstrate their importance.”^{16,17}

He noted that NAD+ is essential for metabolic function and has also been shown to protect against DNA damage and support muscle function.¹⁸ NAD+ levels decline with age, he said, and impacts are seen across muscle, neurologic and overall cellular health.

SR CarnoSyn, a patented, sustained release format of beta-alanine from NAI, was developed in response to a need for a scientifically validated means of reducing sarcopenia, a condition of muscle wasting associated with aging.¹⁹

Easier nutrient delivery with dissolvable oral films

Age-related dysphagia makes it difficult to swallow multiple pills, which can compromise compliance. That's why Aavishkar Oral Strips Pvt. Ltd. developed ThinSol oral thin films (OTFs), a pill alternative that dissolves on the tongue to potentially deliver a higher-than-average amount of active ingredients.

“Seniors want the benefits of supplements and are willing to commit to long-term consumption; however, the idea of a handful of pills to swallow is often daunting,” said Dinesh Reddy, company co-founder and CEO. “Gummies help, but seniors tend to avoid excess sugars and sugar substitutes, and denture wearers will abstain from this form as well.”

ThinSol OTFs are compatible with a variety of supplement ingredients, and the company offers a nutraceutical product portfolio of approximately 100 plant-based, natural flavor and color options spanning more than 100 ingredients and over 320 SKUs.

Editor note: FDA has maintained only orally digested forms can be considered dietary supplements, so it is important for brands using dissolvable films to consider the marketing and product instructions around how these ingredients are absorbed.

Everything you need for Joint Health and Skin Care

100% WATER-SOLUBLE

Biova's ingredients provide the key nutrients vital to supporting joint and skin health*

**Collagen
Elastin**

**Glucosamine
Chondroitin**

Reach out today to find out more about how Stauber can help simplify your formulations

www.stauberusa.com

innovations@stauberusa.com

1-714-441-3900

- Kosher
- Halal
- GRAS
- EU Novel Foods
- Health Canada
- Brazil ANVISA
- NASC Preferred
- Vegetarian
- Sustainable



biovaflex

biovabio
Beauty-Inside-Out

biovaplex

*These statements have not been evaluated by the Food and Drug Administration. This product not intended to diagnose, treat, cure, or prevent any disease.

The quality of your aging is something you can tilt in your favor.

- Lindsay Cole, brand manager, Natures Crops International



LeDoux reported, “Beta-alanine supplementation enhances cellular (and extracellular) carnosine levels in different tissues, providing benefits via multiple mechanisms of action [including] impact on cognition and mood via beta-alanine’s supportive role in neurotrophin levels in the brain [and] immune health through antioxidant action and balance of inflammatory pathways.”²⁰ He pointed to clinical studies supporting muscle strength and function in older adults and master athletes, stating, “This is what we see in healthy aging—you live actively with a balanced, healthy and clear mind.”

From the botanical arsenal, turmeric/curcumin has enjoyed a swell of consumer interest thanks to its association with easing mobility-related inflammation.²¹

During one study, a turmeric extract standardized not to curcuminoids but to

Broad-spectrum brand solutions



Lack of quality sleep can have a profound impact on quality of life, taking a bite out of energy, contributing to brain fog, inhibiting creativity and adversely affecting cellular regeneration.^a

“Experts agree that how well we sleep depends on a few factors: latency (the time it takes you to fall asleep), duration (the length of time you stay asleep) and restfulness (tossing and turning versus peacefully/soundly),” remarked Angelo Keely, Kion CEO and co-founder.^b

Kion Sleep is formulated with gamma-aminobutyric acid (as PharmaGABA) in an attempt to reduce stress, promote relaxation and improve sleep quality;^b L-theanine to elevate levels of the GABA, serotonin and dopamine neurotransmitters;^c and L-tryptophan to increase levels of serotonin and melatonin.^d

CELLF from Mikra combines bioactive glutathione (GSH), coenzyme (Co)Q10 and PQQ (pyrroloquinoline quinone) compounds to address inflammation^{e,f} and oxidative stress while boosting energy levels,^g enhancing cognitive function and promoting healthy sleep.^h The product is packaged in convenient 10 ml sachets that contain a vanilla-flavored liposomal liquid gel.

“It’s not meant to target one specific part of your health, it’s designed to impact all of your biological systems by rebuilding your cellular system from the ground up,” said Faraaz Jamal, Mikra’s CEO and founder. “CELLF is meant to restore and protect [and] results are tangible in a variety of different ways, like reduced recovery times after exercise, enhanced focus, better mood and sleep.”^{e-h}

References

- a Harvey AG et al. “The subjective meaning of sleep quality: a comparison of individuals with and without insomnia.” *Sleep*. 2008;31(3):383-393.
- b Voderholzer U et al. “Impact of experimentally induced serotonin deficiency by tryptophan depletion on sleep EEG in healthy subjects.” *Neuropsychopharmacol*. 1998;18(2):112-124.
- c Yoto A et al. “Oral intake of γ -aminobutyric acid affects mood and activities of central nervous system during stressed condition induced by mental tasks.” *Amino Acids*. 2012;43(3):1331-1337.
- d Hartmann E and Spinweber CL. “Sleep induced by L-tryptophan. Effect of dosages within the normal dietary intake.” *J Nerv Ment Dis*. 1979;167(3):497-499.
- e Farsi F et al. “Can coenzyme Q10 supplementation effectively reduce human tumor necrosis factor- α and interleukin-6 levels in chronic inflammatory diseases? A systematic review and meta-analysis of randomized controlled trials.” *Pharma Research*. 2019;148:104290.
- f Jorat MV et al. “The effects of coenzyme Q10 supplementation on biomarkers of inflammation and oxidative stress in among coronary artery disease: a systematic review and meta-analysis of randomized controlled trials.” *Inflammopharmacol*. 2019;27(2):233-248.
- g Mehrabani S et al. “Effect of coenzyme Q10 supplementation on fatigue: A systematic review of interventional studies.” *Comp Ther Med*. 2019;43:181-187.
- h Qu H et al. “Effects of Coenzyme Q10 on Statin-Induced Myopathy: An Updated Meta-Analysis of Randomized Controlled Trials.” *J Am Heart Assoc*. 2018;7(19).

tumerosaccharides (as Turmacin from Natural Remedies) was shown to substantially decrease pain and stiffness, improve physical function, and reduce reliance on rescue medication to relieve pain.²² Further, significant decreases in joint tenderness and related joint issues were also documented.

In another study, 70 subjects with knee osteoarthritis (OA) took 800 mg Turmacin plus 200 mg curcuminoids or placebo daily for 12 weeks.²³ Compared to placebo, the supplement combo significantly reduced knee pain and improved function.

Two AIDP offerings also support bone health and mobility. KoAct, a patented combination of collagen and calcium, is positioned as ideal for older women who pursue active lifestyles and has been “clinically proven superior to traditional bone health ingredients in improving bone mineral density.”²⁴ KollaGen-II xs supports healthy, flexible joints via a combination of type II collagen from avian sternum, chondroitin and hyaluronic acid.²⁵

Eric Ciappio, Ph.D., is a registered dietitian and the strategic development manager of nutrition science at Balchem, supplier of Creatine MagnaPower, a blend of creatine and magnesium. He mentioned creatine is typically associated with sports nutrition among younger adults, but it’s increasingly being investigated for its ability to support muscle health and performance in older adults. In fact, a meta-analysis concluded creatine improves lean muscle mass and increases strength during resistance training in adults ages 50 and older. Advancements in creatine’s older adult benefits prompted the European Food Safety Authority (EFSA) to release a health claim on creatine for adults ages 55 and above in 2016.^{26,27}

Safeguarding vision

Diminished visual acuity can be another casualty of aging. In June, the National Institutes of Health (NIH) published AREDS (Age-Related Eye Disease Study) Report, a follow-up on the efficacy and safety of the landmark 2018 AREDS 2 data, which advocated for the intake of certain nutrients to potentially help reduce the risk of severe macular degeneration.²⁸

“The [study found the] probability of progressing to late advanced macular degeneration by 10 years was 47.9% for those taking lutein/zeaxanthin and 49.0% for those not taking lutein/zeaxanthin,” said Tyler Holstein, global product manager, Kemin Industries, supplier of FloraGLO Lutein and ZeaONE/Optisharp Natural Zeaxanthin, which were used in the AREDS 2 study. “By 10 years [it] was ... 49.5% for lutein/zeaxanthin.”²⁸

A recent meta-analysis examined the overall health benefits of carotenoids, specifically related to eye disorders.²⁹ Specifically, zeaxanthin and lutein were designated “eyesight protecting agents.” As retinal carotenoid macular pigments, the high-powered duo exerted beneficial antioxidant properties capable of “absorb[ing] short wavelengths and high-energy blue lights,” subsequently protecting the retina from phytochemical damage and ultraviolet (UV)-induced peroxidation.

As science continues to keep pace with the aging population, supplements will remain a helpful resource for aging gracefully. LeDoux concluded, “It’s exciting that organizations such as the NIH are encouraging researchers to look at nutrients—including traditional herbs—and identify/further clarify their mechanisms of action and key constituents that play a role in overall health, as well as their potential roles in maintaining optimal health with age.” ✨



Joanna Cosgrove is a Pennsylvania-based writer who has covered the healthy food, beverage and dietary supplement markets for more than 20 years.

References

- 1 Troesch B et al. "Expert Opinion on Benefits of Long-Chain Omega-3 Fatty Acids (DHA and EPA) in Aging and Clinical Nutrition." *Nutrients*. 2020;12(9):2555.
- 2 Lefort N et al. "Consumption of Buglossoides arvensis seed oil is safe and increases tissue long-chain n-3 fatty acid content more than flax seed oil – results of a phase I randomised clinical trial." *J Nutr Sci*. 2016;5:e2.
- 3 Salminen A and Kaarniranta K. "SIRT1: regulation of longevity via autophagy." *Cell Signal*. 2009;21(9):1356-1360.
- 4 Chung KW and Chung HY. "The Effects of Calorie Restriction on Autophagy: Role on Aging Intervention." *Nutrients*. 2019;11(12):2923.
- 5 Andreux PA et al. "The mitophagy activator urolithin A is safe and induces a molecular signature of improved mitochondrial and cellular health in humans." *Nat Metab*. 2019;1(6):595-603.
- 6 Yang X and Jiang T. "The Role and Mechanism of SIRT1 in Resveratrol-regulated Osteoblast Autophagy in Osteoporosis Rats." *Sci Rep*. 2019;9(1):18424.
- 7 Ghosh N et al. "Urolithin A augments angiogenic pathways in skeletal muscle by bolstering NAD+ and SIRT1." *Sci Rep*. 2020;10(1):20184.
- 8 Kujawska M and Jodynis-Liebert J. "Potential of the ellagic acid-derived gut microbiota metabolite - Urolithin A in gastrointestinal protection." *World J Gastroenterol*. 2020;26(23):3170-3181.
- 9 Shanmugasundaram D and Roza JM. "Assessment of anti-inflammatory and antioxidant activity of quercetin-rutin blend (SophorOx) – an invitro cell-based assay." *J Complement Integr Med*. 2022;Online ahead of print.
- 10 Xue Y et al. "A Combination of Nicotinamide and D-Ribose (RiaGev) Is Safe and Effective to Increase NAD+ Metabolome in Healthy Middle-Aged Adults: A Randomized, Triple-Blind, Placebo-Controlled, Cross-Over Pilot Clinical Trial." *Nutrients*. 2022;14(11):2219.
- 11 Li Y et al. "Quercetin, Inflammation and Immunity." *Nutrients*. 2016;8(3):167.
- 12 Kapoor MP et al. "Bioavailability of dietary isouquercitrin- cyclodextrin molecular inclusion complex in Sprague–Dawley rats and healthy humans." *J Funct Foods*. 2021;85:104663.
- 13 Morgan AK and Stevens J. "Does Bacopa monnieri Improve Memory Performance in Older Persons? Results of a Randomized, Placebo-Controlled, Double-Blind Trial." *J Altern Complement Med*. 2010;16(7):753-759.
- 14 Barbhayia HC et al. "Efficacy and Tolerability of BacoMind on Memory Improvement in Elderly Participants -- A Double-Blind Placebo Controlled Study." *J Pharmacol Toxicol*. 2008;3(6):425-434.
- 15 Hewlings S and Kalman D. "A Randomized, Double-Blind, Placebo-Controlled, Comparator Trial Evaluating Magtein Magnesium Supplement on Quality of Life as Related to Levels of Stress, Anxiety, Fear and Other Indicators." *EC Nutrition*. 2022;17(3):7-14.
- 16 Shlisky J et al. "Nutritional Considerations for Healthy Aging and Reduction in Age-Related Chronic Disease." *Adv Nutr*. 2017;8(1):17-26.
- 17 Hipkiss AR. "Aging, Proteotoxicity, Mitochondria, Glycation, NAD and Carnosine: Possible Inter-Relationships and Resolution of the Oxygen Paradox." *Front Aging Neurosci*. 2010;2:10.
- 18 Chu X, Raju RP. "Regulation of NAD+ metabolism in aging and disease." *Metabolism*. 2022;126:154923.
- 19 Furst T et al. "Alanine supplementation increased physical performance and improved executive function following endurance exercise in middle aged individual." *J Int Soc Sports Nutr*. 2018;15:32.
- 20 Murakami T and Furue M. "The impact of taurine- and beta-alanine-supplemented diets on behavioral and neurochemical parameters in mice: antidepressant versus anxiolytic-like effects." *Amino Acids*. 2010;39(2):427-434.
- 21 Madhu K et al. "Safety and efficacy of Curcuma longa extract in the treatment of painful knee osteoarthritis: a randomized placebo-controlled trial." *Inflammopharmacology*. 2013;21(2):129-136.
- 22 Daily JW et al. "Efficacy of Turmeric Extracts and Curcumin for Alleviating the Symptoms of Joint Arthritis: A Systematic Review and Meta-Analysis of Randomized Clinical Trials." *J Med Food*. 2016;19(8):717-729.
- 23 Wang Z et al. "Effectiveness of Curcuma longa Extract for the Treatment of Symptoms and Effusion-Synovitis of Knee Osteoarthritis: A Randomized Trial." *Ann Intern Med*. 2020;173(11):861-869.
- 24 Elam ML et al. "A calcium-collagen chelate dietary supplement attenuates bone loss in postmenopausal women with osteopenia: a randomized controlled trial." *J Med Food*. 2015;18(3):324-331.
- 25 Lopes AP et al. "A 30-day clinical investigation of the safety and efficacy of KollaGen II-xs, a new avian sternal collagen type II hydrolysate." *HealthMED*. 2016;10(2).
- 26 Forbes SC et al. "Meta-Analysis Examining the Importance of Creatine Ingestion Strategies on Lean Tissue Mass and Strength in Older Adults." *Nutrients*. 2021;13(6):1912.
- 27 "Creatine in combination with resistance training and improvement in muscle strength: evaluation of a health claim pursuant to Article 13(5) of Regulation (EC) No 1924/2006." *EFSA J*. 2016;14(2):4400.
- 28 Chew EY et al. "AREDS2 Research Group. Long-term Outcomes of Adding Lutein/Zeaxanthin and -3 Fatty Acids to the AREDS Supplements on Age-Related Macular Degeneration Progression: AREDS2 Report 28." *JAMA Ophthalmol*. 2022:e221640.
- 29 Tan BL and Norhaizan ME. "Carotenoids: How Effective Are They to Prevent Age-Related Diseases?" *Molecules*. 2019;24(9):1801.



Shout Out!

Related content you might be interested in

Desire for healthy aging driving the personalized nutrition market — SupplySide West 2022 education session

Interest in optimizing health span—not just life span—and an awareness that this means staying fit and supporting the body throughout a lifetime is where healthy aging and personalized nutrition intersect. Join a discussion about it in Las Vegas, on Tuesday, Nov. 1, from 1 p.m. to 4 p.m. at the Mandalay Bay Convention Center.

[FOR MORE INFORMATION](#)



**An Innovative Antioxidant For
Healthy Aging and Beauty From Within.**

Solarplast provides massive natural concentrations of detoxifying antioxidants that slow the natural process of cell damage from free radicals—and this antioxidant power is exponentially greater due to the regenerating power of enzymes.

Call us at **800.697.8176** or visit **Deerland.com/solarplast** to find out how this organic green powder can add benefits to your supplement, food and beverage products.



**PROTECT.
REPAIR.
RESTORE.**





Maximum mobility: Ingredients aimed at active nutrition

by Danielle Rose

According to a United Nations report, by 2030, one-sixth of the population will be over the age of 60 ... a number projected to increase to one-fifth by 2050.

Mobility is critical to independence, making it an important factor for healthy aging. Unfortunately, after age 30, muscle mass decreases by approximately 3 to 8% each decade, with the rate of decline even more notable after age 60.¹

“Our recent research with FMCG Gurus highlighted that globally, consumers identified lack of available products as the top challenge in maintaining good mobility as they age,” said Victoria Lam, general manager of marketing for Active Living, Fonterra. “This really highlights untapped opportunities in a generation with high spending power, as well as opportunities for customization.”

More than three-fourths (76%) of global consumers surveyed in Fonterra’s FMCG Gurus 2022 research said that clinically proven and evidence-based claims are important when choosing products for mobility, and 73% believe calcium has benefits for bone and joint health. Another 80% would increase their protein intake if it meant improved longer-term mobility, while 74% of global consumers want to see mobility-supporting products that also boost energy levels.

This paves the way for more advanced and innovative nutrition that not only helps delay the breakdown of bone and muscle associated with aging, but allows the older consumer to do more, with more strength and energy, as they age.

“Remember—many of today’s 50- and 60-somethings do not feel that their age stands in the way of being competitive or as adventurous as their younger counterparts,” said Annie Eng, CEO for HP Ingredients.

Mitigating muscle loss

Bone mass peaks in one’s late 20s, according to a [National Institutes of Health \(NIH\) vitamin C fact sheet for health professionals](#). Lower intake of calcium and vitamin D, as well as a vegetarian diet, can be linked to risk for stress fracture.^{2,3} Bone-building nutrients may help mitigate the reduction of bone loss that occurs as people age.

Sarcopenia, the substantial loss of muscle mass and strength, is accompanied by a decreased capacity to regenerate both, and often has a negative impact on insulin resistance, mitochondrial function and

muscle metabolism. This can have an obvious effect on one's ability to stay active. Impairment to the nervous system and protein synthesis are both believed to contribute to sarcopenia and frailty. Nutritional supplementation and exercise are key factors to aid prevention and management.⁴ However, physical activity and exercise have been found to positively influence muscle-aging concerns, too.⁵

“A challenge in the field of muscle aging is to dissociate the effects of chronological aging, per se, on muscle characteristics from the secondary influence of lifestyle and disease processes,” said Katie Emerson, manager of scientific affairs at Nutrition21.

High protein intake can significantly decrease the risk of hip fracture and play a role in the maintenance of bone mineral density (BMD).⁶ When combined with exercise, protein has also been indicated in helping prevent sarcopenia.⁷

“Dairy protein is widely known to contribute to the growth and maintenance of muscle mass through the combination of high bioavailability and high levels of essential amino acids (especially branched chain amino acids, BCAAs) which stimulates new muscle formation,”⁸ Lam said. “Dairy proteins such as milk protein concentrate or calcium caseinate are a source of both protein and minerals (calcium and phosphorus), components required to build and maintain bone.”

Emerson acknowledged protein can be difficult to work with in large doses. “Using less protein can be particularly useful when formulating products for older populations, which can experience gastrointestinal (GI) distress when consuming large amounts of protein in one sitting,” she explained.

As people age, their ability to synthesize protein diminishes, while the rate of protein breakdown increases, said Shawn Baier, VP of business development at TSI. When combined with vitamin D3, hydroxymethylbutyrate (HMB) has been found to minimize protein breakdown, even without exercise.⁹

“If you can mitigate that increased rate of protein breakdown we see in age, and increase the synthesis [of protein], the net gain allows us to improve muscle as we age,” Baier maintained.

Eric Anderson, managing director at NXT-USA, pointed to the combo of turmeric and tamarind to help regulate inflammation and protect cartilage against degradation, while helping it and other connective tissues rebuild.¹⁰ TamaFlex by NXT was shown to support joint comfort, function and mobility in as little as five days, while reducing joint and systemic inflammation.^{10,11}

Encouraging exercise with active nutrition

Exercise is an important part of healthy aging. However, as metabolism begins to slow naturally, aging adults can find it difficult to lose weight and maintain an active lifestyle.

Compliance with exercise routines is generally below 50%.¹² With older adults, many of whom are not sure how to exercise, or who are simply physically unable to, the rate is even lower.

Emerson said Chromax, Nutrition21's bioavailable form of chromium picolinate, has been effectively used for weight management for the last quarter of a decade, which may have helped some consumers better engage in more effective exercise.¹³



Dairy protein is widely known to contribute to the growth and maintenance of muscle mass.

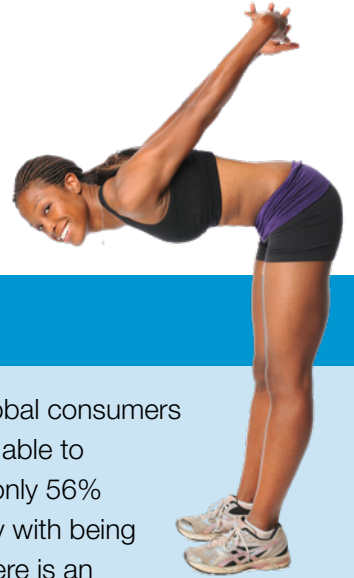
Ingredients for improving strength through exercise



With exercise, strength increases, improving the benefits of continued exercise, while providing more strength and energy for future workouts. Supplementation with certain ingredients can provide support for this cycle from a variety of angles.

Eurycomama longifolia (also known as tongkat ali) has been touted for its ability to enhance muscle strength in both men and women.¹⁴ HP Ingredients' LJ100 was found to offer an additional 17% improvement in knee flexibility compared to test subjects who trained without supplementation.¹⁵ It was also shown to increase testosterone levels and lower cortisol levels in men ages 50-70 while building muscle strength.¹⁶ Tongkat ali's ability to help maintain low normal levels of cortisol and high normal levels of testosterone is thought to improve a person's anabolic state during endurance workouts.¹⁷

Velositol, Nutrition21's patented complex of amylopectin and chromium, can be used alongside protein to increase strength by boosting muscle protein synthesis (MPS), important for enhanced muscle growth, lean body mass and muscle recovery.¹⁸



Understanding modern mobility

Over the last two years, consumers have become more aware of how different aspects of health can impact overall well-being. They recognize how diet and exercise can affect the body's ability to fight infection and are taking a more proactive approach to health and boosting the immune system.

However, mobility is an aspect of well-being that consumers do not pay as much attention to despite a considerable proportion of consumers stating they have concerns about their mobility health. FMCG Gurus consumer insights found that 41% of global consumers wish to address their energy levels; this suggests that consumers are focusing on short-term issues within the mobility market and there is an opportunity for brands to encourage a long-term view on mobility issues.

It is also interesting to note that while globally 71% of consumers say that they are satisfied with their levels of mobility, many also state that they are suffering from a variety of mobility-related issues. This shows that consumers may not fully understand the wider context of mobility and associate mobility with the basic notion of being able to get around. When asked to think about

the word "mobility," 92% of global consumers associated mobility with being able to walk free and easily, whereas only 56% stated they associated mobility with being free from aches and pains. There is an opportunity for the industry to educate and change the way consumers view their mobility.

FMCG Gurus consumer insights found that 87% of consumers attribute poor mobility to aging. However, there is a recognition that reduced mobility can be self-inflicted through poor posture, weight gain, and lack of exercise. With only 50% of consumers stating that good dietary habits can help maintain good levels of mobility, the food and drink industry needs to do more to promote active ingredient claims and highlight the link between diet and good mobility health. Additionally, more can be done to encourage consumers to take a more active approach to improve and maintain mobility due to the impact this has on other areas of well-being such as sleep health, cognitive health, and immunity.

This article is based on FMCG Gurus' Mobility survey series for 2022.

— Emily Smith, content and editorial at FMCG Gurus

Acumin, a curcumin-based supplement from Aurea Biolabs, was found to increase hand grip strength in individuals over 60 years old, while reducing the effects of fatigue and offering better management of muscle protein.¹⁹ It was also found to reduce the onset of muscle soreness post-exercise.²⁰



Andrographis paniculata, such as that found in HP Ingredients' ParActin, can reduce inflammation while improving antioxidant defenses that can interfere with physical activity.²¹ It modulates the immune and inflammatory response systems, and may offer a reduction in pain for those suffering from knee joint discomfort.²²

Exercise and energy



Lack of energy is a common concern for those struggling to exercise. Increasing muscle energy can support one's ability to do more, including exercise, for a healthier lifestyle.

Baier calls adenosine triphosphate (ATP) “energy currency,” as it is required for all metabolic and physical movement. Supplementing with ATP can improve the body's ability to go one step further—such as doing that last rep in the last set. Baier said it's those last, uncomfortable moments of physical activity that create physical change.

ATP isn't a stimulant; it actually creates and facilitates energy within the body. TSI's ATP is not a precursor to ATP, but the actual compound used to transfer energy between cells.

Creatine is an energy source essential to cellular metabolism and ATP, and it can either be created or obtained through food and supplementation.²³ It supports active performance by maintaining ATP synthesis and turnover.²⁴

Adenosine 5' monophosphate-activated protein kinase (AMPK) balances energy consumption and production.²⁵ Bioenergy Life Science combined ribose with nicotinamide to help replenish AMPK and ATP levels, as well as NAD (nicotinamide adenine dinucleotide) and glutathione, while supporting cardiovascular health for an active lifestyle.²⁶

Nutrition for active recovery

When it comes to active nutrition, Svavar Halldorsson, head of sales and marketing at Algalif, said astaxanthin supports endurance and recovery by improving blood flow²⁷ and preventing the formation of lactic acid.²⁸ The result is less muscle fatigue and improved recovery.²⁹ It may also support joint health by reducing swelling and inflammation.³⁰

As muscles burn calories, free radicals are formed as a byproduct.³¹ As a powerful antioxidant,³² astaxanthin can help reduce the fatigue and other resulting ailments in muscle, and throughout other body tissue, improving endurance and strength.³³

Also on the recovery side, Aurea Biolabs' phytocannabinoid Rephyll has shown to provide a significant improvement in muscle soreness.³⁴

“The market has been hyperfocused on the pre-workout market, but we are seeing a shift with companies/consumers looking at post-workout recovery,” Blake Kraemer, VP at Aurea Biolabs, said. “A post-workout routine is a vital component of recovery as we age. Nutrition and supplementation can assist in improving the recovery process.” ♦



Danielle Rose is a researcher, journalist, writer, editor and educator with a focus on creating well-researched articles that foster a better understanding of today's changing world.

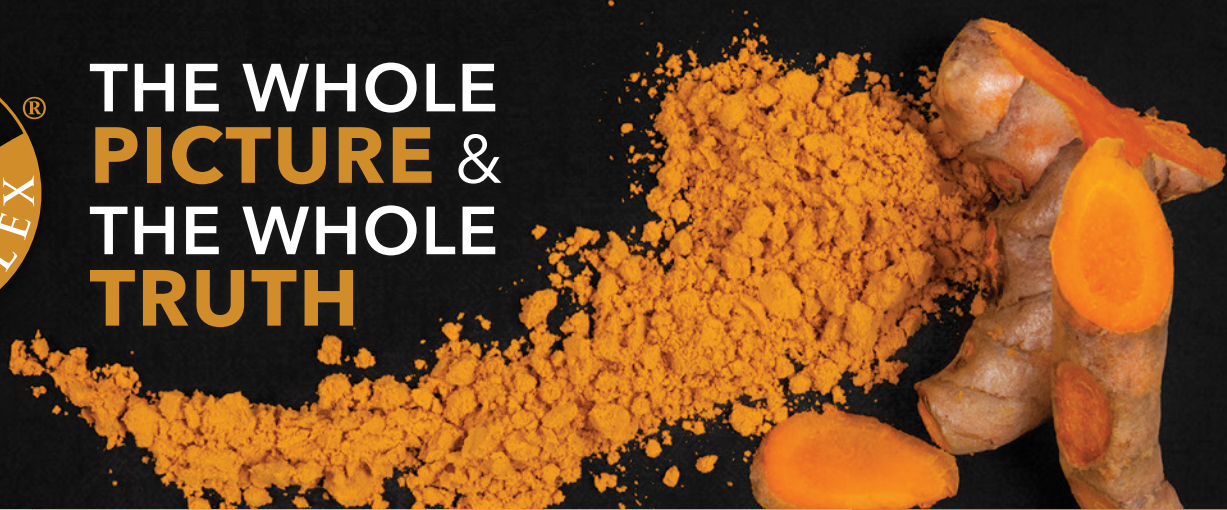
References

- 1 Volpi E et al. "Muscle tissue changes with aging." *Curr Opin Clin Nutr Metab Care*. 2004;7(4):405-410.
- 2 Wright AA et al. "Risk factors associated with lower extremity stress fractures in runners: a systematic review with meta-analysis." *Br J Sports Med*. 2015;49(23):1517-1523.
- 3 Schnackenburg KE et al. "Bone quality and muscle strength in female athletes with lower limb stress fractures." *Med Sci Sports Exerc*. 2011;43(11):2110-2119.
- 4 Nascimento CM et al. "Sarcopenia, frailty and their prevention by exercise." *Free Radic Biol Med*. 2019;132:42-49.
- 5 Distefano G and Goodpaster BH. "Effects of Exercise and Aging on Skeletal Muscle." *Cold Spring Harb Perspect Med*. 2018;8(3):a029785.
- 6 Groenendijk I et al. "High Versus low Dietary Protein Intake and Bone Health in Older Adults: a Systematic Review and Meta-Analysis." *Comput Struct Biotechnol J*. 2019;17:1101-1112.
- 7 Naseeb MA and Volpe SL. "Protein and exercise in the prevention of sarcopenia and aging." *Nutr Res*. 2017;40:1-20.
- 8 Hanach NI et al. "The Impact of Dairy Protein Intake on Muscle Mass, Muscle Strength, and Physical Performance in Middle-Aged to Older Adults with or without Existing Sarcopenia: A Systematic Review and Meta-Analysis." *Adv Nutr*. 2019;10(1):59-69.
- 9 Rathmacher JA et al. "Long-term Effects of Calcium -Hydroxy- -Methylbutyrate and Vitamin D3 Supplementation on Muscular Function in Older Adults With and Without Resistance Training: A Randomized, Double-blind, Controlled Study." *J Gerontol A Biol Sci Med Sci*. 2020;75(11):2089-2097.
- 10 Sanjeev KK et al. "Tamarindus indica Seed Extract-Based Botanical Compositions Alleviate Knee Pain and Improve Joint Function in Mild-to-Moderate Osteoarthritis: A Randomized, Double-Blind, Placebo-Controlled Clinical Study." *Evid Based Complement Alternat Med*. 2022;2022:2226139.
- 11 Rao PS et al. "A Combination of Tamarindus indica seeds and Curcuma longa Rhizome Extracts Improves Knee Joint Function and Alleviates Pain in Non-Arthritic Adults Following Physical Activity." *Int J Med Sci*. 2019;16(6):845-853.
- 12 Dishman RK. "Exercise Compliance: A New View for Public Health." *Phys Sportsmed*. 2016;14(5):127-145.
- 13 Willoughby D et al. "Body Composition Changes in Weight Loss: Strategies and Supplementation for Maintaining Lean Body Mass, a Brief Review." *Nutrients*. 2018;10(12):1876.
- 14 Henkel RR et al. "Tongkat Ali as a potential herbal supplement for physically active male and female seniors--a pilot study." *Phytother Res*. 2014;28(4):544-550.
- 15 Leitão AE et al. "A 6-month, double-blind, placebo-controlled, randomized trial to evaluate the effect of Eurycoma longifolia (Tongkat Ali) and concurrent training on erectile function and testosterone levels in androgen deficiency of aging males (ADAM)." *Maturitas*. 2021;145:78-85.
- 16 Leitão AE et al. "Exercise associated or not to the intake of Eurycoma longifolia improves strength and cardiorespiratory fitness in men with androgen deficiency." *Complement Ther Clin Pract*. 2021;42:101301.
- 17 Chinnappan SM et al. "Effect of Eurycoma longifolia standardised aqueous root extract-Physta on testosterone levels and quality of life in ageing male subjects: a randomised, double-blind, placebo-controlled multicentre study." *Food Nutr Res*. 2021;65.
- 18 Ziegenfuss TN et al. "Effects of an Amylopectin-Chromium Complex Plus Whey Protein on Strength and Power After Eight Weeks of Resistance Training." *J Exerc Nutr*. 2021;4(3).
- 19 Varma K et al. "The Efficacy of the Novel Bioavailable Curcumin (Cureit) in the Management of Sarcopenia in Healthy Elderly Subjects: A Randomized, Placebo-Controlled, Double-Blind Clinical Study." *J Med Food*. 2021;24(1):40-49.
- 20 Amalraj A et al. "The Effects of Bioavailable Curcumin (Cureit) on Delayed Onset Muscle Soreness Induced By Eccentric Continuous Exercise: A Randomized, Placebo-Controlled, Double-Blind Clinical Study." *J Med Food*. 2020;23(5):545-553.
- 21 Tan WSD et al. "Is there a future for andrographolide to be an anti-inflammatory drug? Deciphering its major mechanisms of action." *Biochem Pharmacol*. 2017;139:71-81.
- 22 Hancke JL et al. "A double-blind, randomized, placebo-controlled study to assess the efficacy of Andrographis paniculata standardized extract (ParActin) on pain reduction in subjects with knee osteoarthritis." *Phytother Res*. 2019;33(5):1469-1479.
- 23 Sumien N et al. "Creatine, Creatine Kinase, and Aging." *Subcell Biochem*. 2018;90:145-168.
- 24 Greenhaff PL. "Creatine and its application as an ergogenic aid." *Int J Sport Nutr*. 1995;5 Suppl:S100-110.
- 25 Thomson DM. "The Role of AMPK in the Regulation of Skeletal Muscle Size, Hypertrophy, and Regeneration." *Int J Mol Sci*. 2018;19(10):3125.
- 26 Xue Y et al. "A Combination of Nicotinamide and D-Ribose (RiaGev) Is Safe and Effective to Increase NAD+ Metabolome in Healthy Middle-Aged Adults: A Randomized, Triple-Blind, Placebo-Controlled, Cross-Over Pilot Clinical Trial." *Nutrients*. 2022;14(11):2219.
- 27 Saito M et al. "Astaxanthin increases choroidal blood flow velocity." *Graefes Arch Clin Exp Ophthalmol*. 2012;250(2):239-245.
- 28 Ikeuchi M et al. "Effects of astaxanthin supplementation on exercise-induced fatigue in mice." *Biol Pharm Bull*. 2006;29(10):2106-2110.
- 29 Brown DR et al. "Astaxanthin in Exercise Metabolism, Performance and Recovery: A Review." *Front Nutr*. 2018;4:76.
- 30 Peng YJ et al. "Astaxanthin attenuates joint inflammation induced by monosodium urate crystals." *FASEB J*. 2020;34(8):11215-11226.
- 31 Turrens JF and Boveris A. "Generation of superoxide anion by the NADH dehydrogenase of bovine heart mitochondria." *Biochem J*. 1980;191:421-427.
- 32 Miki W. "Biological functions and activities of animal carotenoids." *Pure Appl Chem*. 1991;63(1):141-146.
- 33 Nishida Y et al. "Quenching Activities of Common Hydrophilic and Lipophilic Antioxidants against Singlet Oxygen Using Chemiluminescence Detection System." *Carotenoid Sci*. 2007;11:16-20.
- 34 Amalraj A et al. "Preparation and Characterization of Liposomal -Caryophyllene (Rephyll) by Nanofiber Weaving Technology and Its Effects on Delayed Onset Muscle Soreness (DOMS) in Humans: A Randomized, Double-Blinded, Crossover-Designed, and Placebo-Controlled Study." *ACS Omega*. 2020;5(37):24045-24056.





THE WHOLE PICTURE & THE WHOLE TRUTH



4
AWARDS



188
PUBLICATIONS



96
CLINICAL
STUDIES



100%
NATURAL
14C VERIFIED

Launched in 1992; granted multiple US and international patents in the following years

Curcumin C3 Complex® is one of the early standardized curcuminoids ingredient to receive a "no questions" letter by US FDA (2013) for GRAS notification. Self-affirmed GRAS status obtained in 2009

Most clinically studied curcumin brand. More than 96 clinical studies and over 188 research papers published plus the greatest number of clinical trials registered at clinicaltrials.gov

Meets regulatory requirements across multiple international jurisdictions (AU, CA, CN, EU, IN, JP, NZ, US)

Health claim "Helps support serum triglyceride levels" approved by Health Canada in 2016

Sabinsa science team behind C3 complex recognized in 2008 by the United States Pharmacopeia (USP) for supporting the development of the turmeric extract monograph and providing the validated analytical method and reference standard for curcumin, demethoxycurcumin and bisdemethoxycurcumin

Confirmed safety record in more than half a dozen clinical studies, with doses up to 12 g/day

Catalyst for transforming the turmeric supply chain to contract cultivation incorporating an extensive network for dedicated farmers to ensure non-GMO certified, sustainable and fair trade material

Only curcuminoids ingredient claims of both balanced gastrointestinal and systemic effects

With a 66:1 plant to extract ratio, supplies 95-100% total curcuminoids to deliver more active compounds per 500 mg dose than any excipient- or oil-based brand

Manufacturing sites FSSC 22000 qualified, NSF GMP, USP GMP and US FDA inspected and audited

First curcuminoids ingredient certified as natural by the Center for Applied Isotope Studies (CAIS), Atlanta, GA (2015). Every batch sold is assayed and certified 100% Biobased Carbon



GMO FREE



NANO FREE



SYNTHETIC FREE



GLUTEN FREE



OXALATE FREE

- Supports normal inflammation response*
- May help maintain a healthy heart & cardiovascular system*
- May help support joint function mobility & comfort*
- May support immune health*



THE #1 CLINICALLY STUDIED CURCUMIN BRAND

sabinsa.com | curcuminc3complex.com



© 2018-2022 Sabinsa | NJ: 732.777.1111 | UT: 801.465.8400 | info@sabinsa.com | Since 1988

* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, mitigate or prevent any disease.

Collagen and healthy aging: A key factor to unlocking the body's regeneration codes

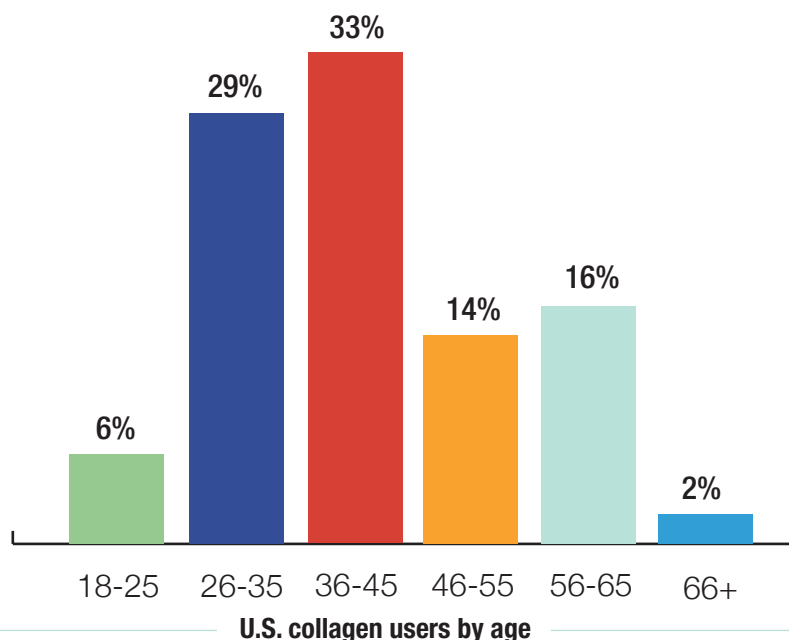
by Monet Euan



Collagen is a powerful, multifaceted and well-studied ingredient that has demonstrated vast product potential in addressing a multitude of concerns when it comes to healthy aging, whether as a single-ingredient supplement or in synergistic combination with other functional ingredients.

Skin quality and elasticity, joint health, flexibility, physical performance, brain health, cognition and immune function top the list of concerns aligned with collagen's potential impact.

Recent data indicates consumers as young as Millennials have become proactive with collagen supplementation. Gene Bruno, MS, MHS, RH(AHG), VP of scientific and regulatory affairs for Twinlab Consolidation Corp. (which includes the Reserveage brand), pointed to a statistic from a Natural Marketing Institute (NMI) proprietary report, citing, "77% of Millennials saw a healthy, balanced lifestyle as 'very' or 'extremely important' in 2020. This may be the reason for the high level of collagen use by this age group." Bruno shared the following breakdown from the Collagen Stewardship Alliance's proprietary data:



Source: Collagen Stewardship Alliance proprietary data

Focus: Collagen

Angie Rimel, marketing communications manager for GELITA, observed, “Healthy aging is relevant to all consumers— independent of age. Youthful looks are the classic concern, but mobility and staying physically active is a close second. Here, joint health is critical, but bone health is also an important contribution to mobility.”

She pointed to [data](#) from the World Health Organization (WHO) supporting the impending rise of what she called “silver supplementers,” or citizens over the age of 60. “The world will soon have more elderly people than children, more people living into older ages than ever before,” Rimel noted. But she also suggested seniors are more devoted to staying healthy, active, mobile and independent than in generations past.

Collagen, the most abundant protein in the body, is critical in the creation of the body’s connective tissues.¹ The substance is a major component in muscles, tendons, ligaments, joints, bones, cartilage, skin, eyes, internal organs, gums and much more. The body’s ability to synthesize collagen plays a significant role in healthy aging, particularly as collagen levels decline with age.²

At least 28 types of collagen have been discovered, with types I through IV being the most common, and type I comprising over 90% of the collagen in the human body, according to the [book](#) “Biochemistry, Collagen Synthesis.”

Each collagen type plays a different role in the body, but generally provide structure, strength and support, with some collagens having specific biological functions.³

The common structural feature of collagens is the presence of a triple helix, primarily formed by the amino acids glycine (33%), proline and hydroxyproline (22%), that can range from most of their structure, as in 96% for collagen I to less than 10% as in collagen XII.⁴

Aside from the human body, collagen is naturally found in animals, predominantly in connective tissue, bones, cartilage and skin. Primary sources of collagen peptides are bovine, poultry, porcine, marine and eggshell membrane. Each source contains at least one or more types of collagen. Many collagen products on the market now combine more than one collagen source so as to include a wider range of collagen types to increase the benefits and total efficacy of the product. For example, Ancient Nutrition’s Multi Collagen Protein Powder includes 10 types of collagen from four sources (fish collagen, fermented eggshell membrane, chicken bone broth protein concentrate and bovine collagen).

Collagen molecules are too large to be broken down or assimilated in whole form by the human body. Therefore, collagen peptides (or hydrolyzed collagen) are extracted from the original collagen source and broken down into smaller molecules (hydrolysis), resulting in a lower molecular weight to help make them bioavailable.⁴

According to Rich McWatt, European technical director for TCI Group (MaxiCollagen), the smaller the molecular weight, the better the absorption and synthesis of collagen, bone cartilage, and promotion of synthesis of skin collagen, enhancing elasticity. These effects were demonstrated in a randomized, double-blind, placebo-controlled study with Biocell Collagen from chicken cartilage improving osteoarthritis (OA)-related symptoms.⁵



The body's ability to synthesize collagen plays a significant role in healthy aging, particularly as collagen levels decline with age.



Bruno concurred, “In fact, almost 100% of the orally consumed collagen peptides were rapidly absorbed from the gastrointestinal [GI] tract, as indicated by a pronounced increase of these peptides in blood plasma within the first 12 hours; and these peptides were detectable in several organs and tissues, including the skin.”⁶

Additionally, in two separate double-blind, placebo-controlled studies, women taking 2.5 grams of Verisol (specific bioactive collagen peptides) daily resulted in, “Statistically significant 20% reduction of eye wrinkle volume in comparison to the placebo group, and a statistically significantly 65% higher content of procollagen,” according to the study authors. This was on top of “statistically significant improvement in skin elasticity in comparison to placebo, as well as improvements in skin moisture.”^{7,8}

Markets and Markets [reported](#) gelatin currently holds the dominant share in the collagen market, followed by collagen peptides, with the gelatin segment projected to continue accounting for the largest market share in 2026. Gelatin is a natural protein extracted from collagen, and it offers high levels of amino acids and many of the same benefits as collagen for healthy aging and overall health and wellness.^{9,10,11} Gelatin is touted as an important contributor to gut health, commonly included in leaky gut protocols by functional medicine doctors.^{12,13} And a healthy gut is directly interconnected

to improved skin health and external beauty markers such as hair and nail quality,^{14,15} as well as stronger immunity.¹⁶

In addition to pharmaceutical, nutraceutical and cosmetic applications, gelatin also makes for a very popular food stabilizer, a large part of its appeal and demand, per a Grand View Research [report](#). Given the popularity and demand for gummy supplements, GELITA recently introduced SOLUFORM PE gelatin that combines the properties of gelatin with the functionality of collagen peptides in one ingredient. It allows for adjustable viscosity, gel strength, gel formation and emulsion-forming, stabilizing properties, as well as adjustable foaming and foam stabilization properties.

Markets and Markets projected the marine and poultry collagen segments among the fastest-growing, with marine collagen leading. The market research firm went so far as to dub marine, “Better, in terms of health benefits and bioavailability, as compared to bovine or porcine collagen types.”¹⁷

Additional [research](#) by the firm projected the global marine collagen market to be worth \$782.3 million by 2022, with a compound annual growth rate (CAGR) of 6.8% by 2022-2032.

[Analysis](#) from Future Market Insights found marine collagen to be the most popular cosmetic ingredient because of its potential ties to helping prevent wrinkles, accelerate skin renewal and preserve the health of hair.^{18,19,20} The research firm anticipates the use of marine collagen to grow rapidly in beauty and personal care industries as awareness of these benefits increases among consumers.



Markets and Markets noted the space “is strongly driven by the growing Millennial population, shifting consumer preferences, augmentation of [the] beauty and personal care industry, and increase in supplementary income among consumers.”

Plant-based collagen ‘boosters’

With the vegan food market size projected to more than double by 2026 (valued at \$14.2 billion in 2018 and anticipated to climb to \$31.4 billion by 2026)—per Research and Markets data—demand for plant-based collagen is amping up. Future Market Insights reported, “Sales of plant-based collagen are estimated to reach a value of US\$12.3 billion by 2032, surging at an 8% CAGR through the decade.” While many consumers choose plant-based collagen for ethical, religious and environmental reasons, manufacturers have found plant-based collagen is often both cost-effective and easily scalable in the lab, with a decreased risk for potential issues with allergens.

Plant-based collagen is often referred to as a “collagen booster” or enhancer, as collagen by definition naturally comes from animals. No plant or plant-based food is a direct source of collagen. Therefore, most non-animal products in this niche focus on combining vitamins, minerals, amino acids and other ingredients known to stimulate and support the body’s natural ability to generate collagen. For example, vitamin C is necessary for collagen formation and often included in plant-based formulations in some form.²¹ Common sources of plant-based collagen boosters include black beans, soy, kidney beans, pumpkin seeds, squash seeds, sunflower seeds, chia seeds, pistachios, peanuts and cashews.

Supermodel Christie Brinkley raved about the benefits of Biosil (from Bio Minerals NV) for years, particularly when she was under stress and noticed changes in her hair and skin. Biosil, a supplement composed of choline-stabilized orthosilicic acid (as ch-OSA), has been clinically shown to reduce the depth of fine lines and wrinkles, increase skin elasticity, as well as thicken and strengthen hair and nails.

In a randomized, placebo-controlled trial, it was shown to increase bone collagen production and improve bone mineral density at the hip.^{22,23,24} In randomized, double-blind, placebo-controlled studies, Biosil was shown to support joint and cartilage health, as well as gum and jawbone health.^{25,26} With the emergence of new data suggesting choline can moderate cortisol, Richard Passwater, medical education director for Bio Minerals NV, has observed, “More people are expressing interest in and valuing Biosil’s ability to neutralize homocysteine, and helping to modulate cortisol levels thereby protecting collagen.”^{27,28}

Organifi’s superfood supplement, Glow, a raspberry lemonade-flavored powder, contains natural forms of vitamin c acerola cherry and rosehip, antioxidants baobab fruit and pomegranate, and bamboo silicea, a plant high in organic silica, known for promoting collagen synthesis.²⁹ The product also features tremella mushroom, known for high antioxidant capacity, free-radical scavenging ability and human skin fibroblast protection.³⁰

More human studies are needed, but the mushroom has demonstrated encouraging results in several animal studies. One set of authors noted, “Tremella polysaccharide can be used as a natural moisturizer

“The world will soon have more elderly people than children, and more people living into older ages than ever before”

- Angie Rimel, marketing communications manager for GELITA



Focus: Collagen

to relieve skin dehydration, repair the skin barrier and maintain skin health.”³¹

In another study, the moisturizing effect in products containing tremella polysaccharides at 0.05% was more effective than products containing 0.02% hyaluronic acid—and the cost is only 14% of the latter.³²

Histopathological studies demonstrated oral tremella polysaccharides “promote the regeneration of endogenous collagen and maintain the I/III collagen ratio to protect the skin structure from damage caused by ultraviolet rays.”³³

Collagen delivery formats

Collagen products come in an endless array of delivery formats, with the biggest limitation possibly being imagination. According to a Persistence Market Research [report](#), “Powdered collagen supplements are popular and expected to hold the highest market share of close to 40% by 2031, with the segment expanding at around 5% CAGR throughout the assessment period.” Consumers love flavorless, easily dissolvable powders that can be added to coffee, lattes, smoothies and beverages, and chefs/bakers are incorporating collagen peptides into homemade recipes such as cookies, pancakes and power bites.

Supplements that pair collagen peptides with well-studied ingredients targeting a range of consumer concerns in one product are also enticing consumers. Jennifer Aniston’s recent collaboration with Vital Proteins as the company’s new chief creative officer resulted in the Vital Performance Protein Bar line that contains grass-fed, pasture-raised collagen peptides and superfoods such as maca, reishi and cordyceps, with less than a gram of sugar. Thorne’s Collagen Plus powder—a passion berry flavored bovine collagen with nicotinamide riboside hydrogen malate, trimethylglycine (TMG, also known as betaine), HydroPeach ceramides and MitoHeal red currant and black currant—combines powerful heavy hitters in the healthy aging category. The food and beverage sector plans to introduce new collagen-infused products targeting health-conscious consumers and the aging population like GLOWUP’s ready-to-drink (RTD) collagen matcha latte packed with 8,000 mg of marine collagen, hyaluronic acid, biotin, vitamins C and D, and antioxidants.

Rimel shared, “When it comes to supplementation, consumers are experiencing ‘pill fatigue’ and are therefore looking for new supplement formats. They don’t want another pill—they want an experience. Here, collagen peptides allow for a wide range of formulations; for example, powder, gel, gummies, concentrated shots, ready-to-drink beverages and bars, and inclusion in everyday foods such as yogurt.”

She continued, “Most recently, the market demand for gummy supplements is increasing. One challenge for gummy supplement



THERE'S ONLY ONE CURCUMIN PHYTOSOME

MERIVA[®]
CURCUMIN PHYTOSOME

Unmatched bioabsorption, extensive range of supported health conditions and professional endorsements verify the fact: no curcumin can stand up to the proven performance of — Meriva[®] Curcumin Phytosome — with more than 35 human studies. Don't risk your reputation by using anything else. There's only one Meriva[®].

indena.
com



 **indena**[®]
SCIENCE IS OUR NATURE. SINCE 1921





developers is the limited amount of active nutritional ingredient which can be added to the gummy formulation compared to the amount included in a tablet or capsule.” GELITA hopes to resolve this challenge with its SOLUFORM PE gelatin, which paves the way for high-protein, low-sugar candy and confection options.

Meanwhile, Bio Minerals NV offers both liquid and capsule forms of its Biosil supplement, with Passwater noting its new BioSil liquid tiny (size 3) vegan capsules are the fastest-growing product in the company’s portfolio.

Andalou Naturals recently released a bio-designed (fermented vegan) collagen and hyaluronic acid facial care line that includes a Revitalizing Sleeping Mask cream, sheet masks and serum. Grand View Research noted the collagen space is showing high demand for “collagen-based cosmetics, skin care and wellness products due to their superior anti-aging and cell repair properties.”⁷ This demand will only continue to increase as collagen’s benefits and applications become more widely recognized.

The market research firm valued the global collagen market at \$8.36 billion in 2020, with anticipated growth of 9% to reach \$16.7 billion by 2028. This comes as no surprise given the science behind collagen, the proven effectiveness and the numerous applications available across various industries.

With collagen’s rising popularity and demand moving forward, quality continues to be a significant factor for well-informed, discerning consumers looking for the best sources. Case in point, Elina Fedotova, founder and chief formulator for Elina Organics, as well as a cosmetic chemist, celebrity aesthetician and president of the Association of Holistic Skincare Practitioners, stated, “I think it is trendy to find the purest source of collagen—like wild cod vs. farm-raised, or collagen extracted by grass-fed or organic sources.”

While an exotic source may be trendy, it could also be essential to developing long-term trust and loyalty with consumers who are clearly committed to living healthy, active and conscientiously for as long as possible. ✨



[Monet Euan](#) is a freelance writer and editor, passionate about health and wellness, and committed to supporting others by sharing holistic tools to elevate mind, body and spirit.

References

- 1 Stefanovic B. "RNA protein interactions governing expression of the most abundant protein in human body, type I collagen." *Wiley Interdiscip Rev RNA*. 2013;4(5):535-545.
- 2 Zhang S and Duan E. "Fighting against Skin Aging: The Way from Bench to Bedside." *Cell Transplant*. 2018;27(5):729-738.
- 3 Ricard-Blum S. "The Collagen Family." *Cold Spring Harb Perspect Biol*. 2011;3(1):a004978.
- 4 León-López A et al. "Hydrolyzed Collagen—Sources and Applications." *Molecules*. 2019;24(22):4031.
- 5 Schauss AG et al. "Effect of the novel low molecular weight hydrolyzed chicken sternal cartilage extract, BioCell Collagen, on improving osteoarthritis-related symptoms: a randomized, double-blind, placebo-controlled trial." *J Agric Food Chem*. 2012;60(16):4096-4101.
- 6 Oesser S et al. "Oral administration of (14C) labeled gelatin hydrolysate leads to an accumulation of radioactivity in cartilage of mice (C57/BL)." *J Nutr*. 1999;129:1891-1895.
- 7 Proksch E et al. "Oral intake of specific bioactive collagen peptides reduces skin wrinkles and increases dermal matrix synthesis." *Skin Pharmacol Physiol*. 2014;27(3):113-119.
- 8 Proksch E et al. "Oral supplementation of specific collagen peptides has beneficial effects on human skin physiology: a double-blind, placebo-controlled study." *Skin Pharmacol Physiol*. 2014;27(1):47-55.
- 9 Vollmer DL et al. "Enhancing Skin Health: By Oral Administration of Natural Compounds and Minerals with Implications to the Dermal Microbiome." *Int J Mol Sci*. 2018;19(10):3059.
- 10 Wang L et al. "The anti-skin-aging effect of oral administration of gelatin from the swim bladder of Amur sturgeon (*Acipenser schrenckii*)." *Food Funct*. 2019;10(7):3890-3897.
- 11 Wang L et al. "Determination of bioavailability and identification of collagen peptide in blood after oral ingestion of gelatin." *J Sci Food Agric*. 2015;95(13):2712-2717.
- 12 Chen Q et al. "Collagen peptides ameliorate intestinal epithelial barrier dysfunction in immunostimulatory Caco-2 cell monolayers via enhancing tight junctions." *Food Funct*. 2017;8(3):1144-1151.
- 13 Samonina G et al. "Protection of gastric mucosal integrity by gelatin and simple proline-containing peptides." *Pathophysiology*. 2000;7(1):69-73.
- 14 De Pessemer B et al. "Gut-Skin Axis: Current Knowledge of the Interrelationship between Microbial Dysbiosis and Skin Conditions." *Microorganisms*. 2021;9(2):353.
- 15 De Vos WM et al. "Gut microbiome and health: mechanistic insights." *Gut*. 2022;71(5):1020-1032.
- 16 Shi N et al. "Interaction between the gut microbiome and mucosal immune system." *Mil Med Res*. 2017;4:14.
- 17 Ohara H et al. "Comparison of quantity and structures of hydroxyproline-containing peptides in human blood after oral ingestion of gelatin hydrolysates from different sources." *J Agric Food Chem*. 2007;55(4):1532-1535.
- 18 Evans M et al. "A randomized, triple-blind, placebo-controlled, parallel study to evaluate the efficacy of a freshwater marine collagen on skin wrinkles and elasticity." *J Cosmet Dermatol*. 2021;20(3):825-834.
- 19 De Luca C et al. "Skin Antiaging and Systemic Redox Effects of Supplementation with Marine Collagen Peptides and Plant-Derived Antioxidants: A Single-Blind Case-Control Clinical Study." *Oxid Med Cell Longev*. 2016;2016:4389410.
- 20 Fan J et al. "Effects of collagen and collagen hydrolysate from jellyfish umbrella on histological and immunity changes of mice photoaging." *Nutrients*. 2013;5(1):223-233.
- 21 MacKay D and Miller AL. "Nutritional support for wound healing." *Altern Med Rev*. 2003;8(4):359-377.
- 22 Wickert RR et al. "Effect of oral intake of choline-stabilized orthosilicic acid on hair tensile strength and morphology in women with fine hair." *Arch Dermatol Res*. 2007;299(10):499-505.
- 23 Barel A et al. "Effect of oral intake of choline-stabilized orthosilicic acid on skin, nails and hair in women with photodamaged skin." *Arch Dermatol Res*. 2006;297(10):481.
- 24 Spector TD et al. "Choline-stabilized orthosilicic acid supplementation as an adjunct to calcium/vitamin D3 stimulates markers of bone formation in osteopenic females: a randomized, placebo-controlled trial." *BMC Musculoskelet Disord*. 2008;9:85.
- 25 Geusens P et al. "A 12-week randomized, double-blind, placebo-controlled multicenter study of choline-stabilized orthosilicic acid in patients with symptomatic knee osteoarthritis." *BMC Musculoskelet Disord*. 2017;18(1):2.
- 26 Teughels W et al. "The effect of choline-stabilized orthosilicic acid in patients with peri-implantitis: an exploratory randomized, double-blind, placebo controlled study." *BMC Oral Health*. 2021;21(1):485.
- 27 Wiedeman AM et al. "Dietary Choline Intake: Current State of Knowledge Across the Life Cycle." *Nutrients*. 2018;10(10):1513.
- 28 Morey JN et al. "Current Directions in Stress and Human Immune Function." *Curr Opin Psychol*. 2015;5:13-17.
- 29 Ma X et al. "A review on the production, structure, bioactivities and applications of Tremella polysaccharides." *Int J Immunopathol Pharmacol*. 2021;35:20587384211000541.
- 30 Jiang H et al. "Feasibility Study of Tissue Transglutaminase for Self-Catalytic Cross-Linking of Self-Assembled Collagen Fibril Hydrogel and Its Promising Application in Wound Healing Promotion." *ACS Omega*. 2019;4(7):12606-12615.
- 31 Liu H and He L. "Comparison of moisturizing properties of polysaccharides from Tremella fuciformis and hyaluronic acid." *J Anhui Agric Sci*. 2012;40(26):13093-13094.
- 32 Wen L et al. "Effect of polysaccharides from Tremella fuciformis on UV-induced photoaging." *J Funct Foods*. 2016;20:400-410.
- 33 Araújo LA et al. "Use of silicon for skin and hair care: an approach of chemical forms available and efficacy." *An Bras Dermatol*. 2016;91(3):331-335.12 Bungau S et al. "Health benefits of polyphenols and carotenoids in age-related eye diseases." *Oxid Med Cell Longev*. 2019;2019:9783429.



Shout Out!

Related content you
might be interested in

Anti-aging scientist IDs ingredient that extends life span and health span – podcast

Veteran anti-aging researcher Brian Kennedy, director of the Center for Healthy Longevity at the National University of Singapore, discusses (LifeAKG) study results and the regulation of biomarkers.

[LEARN MORE HERE](#)



Create a Stir with premium marine collagen

Tasteless. Odorless. Straight-fill.

Pacific Peptides™ wild-caught, marine collagen provides a quick and simple way to bring your collagen offering directly to market—or, a powerful head start on seamlessly developing your own creations.



Get empowered at
Prinovaglobal.com/pacific-peptides

GET EMPOWERED



Ingredient quality affects blood sugar management, healthy aging

by Anke Sentko



Healthy aging and healthy eating are strongly correlated. The potential of developing non-communicable diseases (NCDs) such as diabetes and overweight/obesity increases with age, as the body's ability to correct dietary mistakes decreases.

The metabolic and physiological risk factors of contracting an NCD, or delaying its onset, are influenced by a range of factors such as the conditions mentioned above, as well as having a combination of high blood glucose, blood fat levels and/or raised blood pressure. However, the development of such diseases can be influenced by diet and lifestyle-related changes.

Within balanced nutrition, carbohydrates are an important part of a person's diet, regardless of age. They are in fact the largest part of the intake recommendations for [macronutrients](#); between 55% to 75% of a person's energy should come from them. Many evidence-based reports suggest that the preferred choice of carbohydrate should be one that is slowly available.^{1,2,3} This is to enable a lower blood glucose profile to be maintained throughout the day, thereby more easily achieving a lower insulin level. This not only supports metabolic health, but benefits fat oxidation for energy production and inhibits the storage of fat, which may support weight management. With all this in mind, the nutritional quality of carbohydrates is very important to healthy aging.

Increased focus on healthy aging

According to a 2020 survey by Health Focus International, 85% of participants ages 50 and older expressed how they want to take charge of their health, especially since they have come to understand that their short-term health depends on how well they take care of themselves. Of course, diet has a huge direct impact on health, and 30% of these participants confirmed that the main reason for making healthier food and beverage choices was for the purpose of future good health. And 28% of those surveyed selected healthier food and drink choices simply to facilitate daily health, which means a total of 58% of people aged 50 and over equate what they eat or drink as directly impacting their daily and future health.

Healthier food, stronger immune system

A healthy immune system can impact how well the body ages. Maintaining healthy blood glucose levels is highly recommended to support one's inner defense system. While high blood glucose is linked to pre-diabetes and type 2 diabetes, blood glucose levels also affect the innate immune system.⁴ During the global pandemic, this became apparent when researchers uncovered that independent of diabetes, high blood glucose levels presented a risk factor.^{5,6,7}

Elevated blood glucose levels can be a consequence of chronic lifestyle conditions. Tightly linked to such conditions as obesity, metabolic syndrome, pre-diabetes, diabetes and coronary heart disease, high blood glucose affects millions of people worldwide. However, such high levels can be remedied through adoption of a healthier diet. By making better food and ingredient choices, such as low-glycemic functional carbohydrates, blood glucose response is improved and better health outcomes can be achieved.

Role of low-glycemic functional ingredients

It is becoming obvious that managing a person's blood glucose level is a good way to help promote long-term health. Lower blood sugar levels have been shown to help strengthen immunity.⁴ According to a consumer survey conducted by Insites Consulting, 78% of participants ages 65 to 75 keep tabs on their sugar intake. Blood sugar management has taken center stage related to making the right choice of carbohydrate. The optimal carbohydrate delivers the energy needed to sustain a person's metabolism by triggering a low and balanced rise in blood glucose and a low increase in insulin. An added benefit is seen in the increase of burning fat rather than storing it.

It is no wonder why food producers are interested in providing food and beverage products that deliver a lower-glycemic profile and support long-term consumer health. They realize the benefits of such a profile and the strong consumer draw it has for healthy aging.

Blood sugar management starts with picking the right ingredients that support a lower-glycemic profile.

Slow-release sugar made from sucrose and naturally sourced from sugar beet has the unique ability to cause a lower rise in blood glucose while delivering full carbohydrate energy (4 kcal/g). With slow uptake results and a low and balanced blood glucose response, the ingredient is well positioned to help support blood sugar management. In addition, non-digestible carbohydrates can provide half the calories of sugar with nearly negligible effects on blood sugar and insulin levels.

Insulin resistance and glucose tolerance

In the silver generation, many biological processes slow down and the elasticity of the metabolism—including self-correction processes or the stirring of regulatory or hormonal processes—is less effective. This is reflected in insulin resistance and impaired glucose tolerance. For many people, getting older also often goes hand in hand with becoming overweight or obese, which are both risk factors for further diseases.

As a person becomes overweight or obese, their blood pressure, cholesterol, triglycerides and glucose intolerance increase, along with their insulin resistance, risk of thrombosis and endothelial dysfunction. Impaired glucose tolerance increases with age, as does the development of diabetes. These can all increase the risk of developing NCDs such as cardiovascular disease, hypertension, some cancers and type 2 diabetes.

Since 1980, there has been a global increase of 27.5% in obese and overweight adults, with a typical adult gaining approximately 2.2 pounds per year over their lifetime and a deficiency of 7,000 kcal needed to lose that annual increase.⁸ Supporting a healthy lifestyle begins with enjoyable products that help people eat less. Low-glycemic products are key in



78% of participants ages 65 to 75 keep tabs on their sugar intake.



the weight management toolbox. They help to lower a person's blood glucose profile, which helps lower insulin levels and supports metabolic health, fat oxidation and the inhibition of fat storage.

Bifidobacteria and blood glucose response

In addition to the functional carbohydrates mentioned as benefitting blood glucose response, chicory root prebiotic fibers can support a low-glycemic diet through the replacement of carbohydrates with dietary fiber. Studies have shown that chicory root fiber nourishes the beneficial gut microbiota,⁹ supports blood sugar management¹⁰⁻¹³ and weight management^{10,12} together with digestive health^{9,14} and well-being.¹⁵

One recent scientific study conducted by Perfood GmbH in Germany and the University of Lübeck demonstrated how slow-release carbohydrates combined with prebiotic fiber can improve blood glucose control.¹⁶ The study used a citizen science approach, and the findings highlighted the beneficial effects of these ingredients used in tandem. In comparison to sucrose, functional carbohydrates showed a lower blood glucose response, a lower and more balanced blood glucose profile for the day, plus a slow-release and sustained glucose supply. The positive effects of chicory root fiber supplementation were also demonstrated in this real-life situation through a significant increase in beneficial bifidobacteria and a significant decrease in glycemic variability over time.

Due to the pandemic, more consumers have come to appreciate opportunities to boost their long-term health, immunity and mental stability. Many R&D teams are developing new product innovations, while others are working toward product quality improvements by incorporating functional ingredients such as slow-release carbohydrates to support consumer health goals. Hence, so many creative food and drink providers are turning to their ingredient suppliers to not only deliver immune support but promote long-term health. ♦



Anke Sentko is VP of regulatory affairs and nutrition communication at [BENEÓ](#), where she manages several aspects of BENEÓ's functional ingredients portfolio (approvals of ingredients and claims, claims substantiation, transferring the science-based knowledge into dossiers, articles, presentations etc.) and works with health authorities, health care professionals, scientists in academia and industry, media and all other interested parties.

References

- 1 Augustin LSA et al. "Glycemic index, glycemic load and glycaemic response: An international scientific consensus summit from the international carbohydrate quality consortium (ICQC)." *Nutr Metab Cardiovasc Dis.* 2011;25(9):795-815.
- 2 Livesey G et al. "Dietary Glycemic Index and Load and the Risk of Type 2 Diabetes: A Systematic Review and Updated Meta-Analyses of Prospective Cohort Studies." *Nutrients.* 2019;11(6):1280.
- 3 Zalewski BM et al. "Nutrition of infants and young children (one to three years) and its effect on later health: a systematic review of current health recommendations." *Crit Rev Food Sci Nutr.* 2017;57(3):489-500.
- 4 Jafar N et al. "The effect of short-term hyperglycemia on the innate immune system." *Am J Med Sci.* 2016;351(2):201-211.
- 5 Zhu B et al. "J-shaped Association Between fasting blood glucose levels and COVID-19 severity in patients without diabetes." *Diabetes Res Clin Pract.* 2020;168:108381.
- 6 Zhu L et al. "Association of Blood Glucose Control and Outcomes in Patients with COVID-19 and Pre-Existing Type 2 Diabetes." *Cell Metabol.* 2020;31(6):1068-1077.
- 7 Carrasco-Sánchez FJ et al. "Admission hyperglycaemia as a predictor of mortality in patients hospitalized with COVID-19 regardless of diabetes status: data from the Spanish SEMI-COVID-19 Registry." *Ann Med.* 2021;53(1):103-116.
- 8 Khan LK and Bowman BA. "Obesity: A major global public health problem." *Annu Rev Nutr.* 1999;19:13-17.
- 9 Yurrita LC et al. "Effectiveness of inulin intake on indicators of chronic constipation; a meta-analysis of controlled randomized clinical trials." *Nutr Hosp.* 2014;30(2):244-252.
- 10 Kellow NJ et al. "Metabolic benefits of dietary prebiotics in human subjects: a systematic review of randomised controlled trials." *Br J Nutr.* 2014;111(7):1147-1161.
- 11 Liu F et al. "Effect of inulin-type fructans on blood lipid profile and glucose level: a systematic review and meta-analysis of randomized controlled trials." *Eur J Clin Nutr.* 2017;71:9-20.
- 12 O'Connor S et al. "Prebiotics in the management of components of the metabolic syndrome." *Maturitas.* 2017;104:11-18.
- 13 Zhang J et al. "Efficacy of prebiotics and probiotics for functional dyspepsia: a systematic review and meta-analysis." *Medicine (Baltimore).* 2020;99(7):e19107.
- 14 Skórka A et al. "Infant formulae supplemented with prebiotics: Are they better than unsupplemented formulae? An updated systematic review." *Br J Nutr.* 2018;119(7):810-825.
- 15 Vandeputte D et al. "Prebiotic-type inulin fructans induce specific changes in the human gut microbiota." *Gut.* 2017;66(11):1968-1974.
- 16 Kordowski A et al. "Palatinose (Isomaltulose) and Prebiotic Inulin-Type Fructans Have Beneficial Effects on Glycemic Response and Gut Microbiota Composition in Healthy Volunteers - A Real-Life, Retrospective Study of a Cohort That Participated in a Digital Nutrition Program." *Front Nutr.* 2022;9:829933.



making it
better

Means it's
healthier

Today's consumers understand how a healthier diet impacts their overall well-being. At AAK, with over 150 years of experience in plant-based oils and fats, we collaborate with you to create products that will improve nutritional intake. We start with carefully sourced raw materials. Then, we develop and produce them to rigorous standards to help you make high-quality products that nourish people all over the world.

AAK

Making Better Happen™

betterwithaak.com

Healthy aging formulation and trends

by Danielle Rose



Perception of age is rapidly evolving, as is society's approach to healthy aging. Supplements in this category are no longer just for the elderly, nor are capsules and tablets the only delivery formats today's consumer seeks.

Despite the 11th revision of the International Classification of Diseases (ICD-11) from the World Health Organization (WHO) identifying aging as a treatable disease,¹ market research firm The Hartman Group contends modern aging is shifting toward an experience to be honored, rather than treated.

The [U.S. Census Bureau's 2017 National Population Projections Tables](#) indicated that by 2030, one in every five U.S. residents will be of retirement age, effectively making it the first time in American history that senior citizens will outnumber children. Boomers in particular are maintaining work, travel and fitness as part of an aging lifestyle, and although this demographic holds a lion's share of spending power, The Hartman Group maintains companies often either ignore—or ineffectually speak to—the generation.

Addressing the changing landscape of aging, the shifting perception of age and multigenerational demographic requires knowledge of trends, an eye for innovation and an understanding of the ingredients behind what it means to age well.

Not your normal demographic

According to proprietary data from The Hartman Group, nearly three times as many households are working to prevent memory and cognitive concerns compared to those actually treating them, indicating the importance of this niche. More than three-fourths (80%) of consumers want to improve focus and mental clarity, which includes many younger consumers across all socioeconomic sectors.

Immunity and gut health remain top concerns and are also supporting a shift from reactive to proactive approaches, like seeking foods that may help reduce systemic inflammation. The Hartman Group found that more than 80% of those surveyed across age segments wanted to improve immunity (17% urgently so), and 51% of consumers include immunity in their definition of health and wellness (33% of Gen Z, 37% of Millennials, 52% Gen X, 73% of Boomers).

“While Baby Boomers top the list of supplement users, the oldest Millennials are entering their 40s and the younger Millennials and Gen-Zers are, in general, more health-conscious at their age than previous generations have been,” said Reese Wood, co-founder, and VP of operations at Double Wood Supplements.

On the other hand, The Hartman Group has also found that older generations are no more likely than younger ones to be concerned about aging. Physical, mental and social resilience are their top concerns, and physical appearance ranks low. They are increasingly demanding fresh, local, real foods and

Trends: Formulation and ingredients

higher-quality ingredients, finding indulgence more permissible when it's consumed in smaller quantities of the “real thing.”

Shelley Balanko, Ph.D., SVP of The Hartman Group, suggested, “In light of shifts in health and wellness culture more broadly, today's older consumers link ‘real food’ to health and wellness unlike any previous ‘senior’ cohort.” She also said they are more likely to care for themselves by utilizing a variety of means, from supplements, to diet, to staying active.

As the healthy aging consumer emerges younger than ever, Benjamin Silver, co-founder and CEO of BROCSHOT, believes today's social media age has a role to play. Younger consumers not only have more access to information, but they are also more frequently exposed to certain “filtered” standards of beauty. As a result, BROCSHOT supports continued education, including helping consumers understand how and why people age, and what they can naturally and realistically do to support lasting beauty and wellness.

“Social media's portrayal of what it means to be ‘elderly’ has also changed quite a bit, as more people have come around to the idea that an early commitment to healthy lifestyle choices and investment in self-care will pay off with a longer, and more vibrant quality of life,” Wood said.

According to The Hartman Group, the top issues being addressed and prevented by Boomers are high blood pressure (67%), high cholesterol (64%), aches and pains (58%), overweight (57%), arthritis/chronic joint pain (55%) and cardiovascular health (49%).

As far as David Little, director and head “chocopreneur” at Immunity Goodness is concerned, his company's demographic isn't based on age, gender or income, but rather, who prefers chocolate.

“We look at it as who likes chocolate and who doesn't, and who would like to take their vitamins this way,” Little explained. “Our ability is to use chocolate in different ways people don't normally think about.”

Innovation and trends for healthy aging

As the demographic for healthy aging shifts across generations, so too do the trends.

“As we age, we require products that offer multiple benefits, such as better digestive comfort and more nutrient-dense formulation, through to easy-to-open packaging. Boosting protein and calories across a range of breakfast, main meal and snack foods can be a more manageable way of contributing to better health outcomes for seniors,” said Victoria Lam, general manager of marketing, Active Living, Fonterra.

Today's discerning customers may make an online purchase through Amazon or elsewhere, but they are also willing to research to ensure their manufacturer offers transparency and adherence to GMP (good manufacturing practice) and other industry standards. Millennials in particular are more likely to educate themselves and research symptoms than they are to keep a doctor's appointment, Wood said, and Double Wood tries to keep these preferences in mind when engaging with its customers.

Malcolm Greenberg (aka “the Monk Fruit Guy”), VP of sales, North America, at Adallen Nutrition, has found that multiuse formulations are also an important trend. For example,



As the demographic for healthy aging shifts across generations, so too, do the trends.

the combination of fiber and protein can be found in products ranging from baked goods to ready-to-drink (RTD) beverages.

“Many of these products have been incorporating monk fruit or other zero-calorie sweeteners to complement the healthy halo concept, especially for healthy aging,” Greenberg said.

Edible CBD is also a growing trend in the healthy aging sector, Greenberg has noticed, particularly as companies seek lower-calorie, lower-glycemic options such as monk fruit that do double duty by masking CBD off-notes. Like traditional sugar, monk fruit and other natural low- or no-sugar sweeteners come in various formats for different applications.

“Aging can also impact sense of taste, chewing and swallowing ability,” Lam pointed out. “Today’s nutritional offerings do not always cater to these needs.”

Silver is seeing that today’s consumers don’t want fussy complicated routines, or to wait weeks or months in the hope that a product might work for them. Nor do they want another pill, powder or fad ingredient. They are seeking products backed by research and science. BROC SHOT’s unique “push and drink” delivery system does just that, while the company’s money-back guarantee assures customers that benefits can be seen within days.

“Many products aren’t delivering on their promise, which is why customers ‘seem’ less loyal today,” he shared. “Consumers aren’t less loyal arbitrarily; they have more choices, and if brands can’t meet their needs, they have the option to move on. Time is also a major factor. Consumers are time-poor, so they are seeking not just efficacy, but also convenience as an add-value.”

Elina Organics has found that consumers are trying to avoid invasive cosmetic procedures, instead choosing targeted clinical skin care products. For some, that may mean a topical product containing microcrystals and other ingredients to stimulate skin health, Elina Organics’ founder, cosmetic chemist and esthetician, Elina Fedotova, said.

As the market for healthy aging supplements rises, more unique product offerings that combine existing concerns with preventive measures are required to meet market demand.

With these offerings come unique packaging and usage needs. For example, broccoli sprout powder cannot be premixed, and once activated by water, it degrades rapidly. BROC SHOT circumvented this issue by creating a patented dosing cap that premixes the shot at the press of a button. The company even sends a free shipping label so consumers can easily return the shot bottles in the box they came in to be recycled through TerraCycle.





myHMB® + Vitamin D

A POWERFUL COMBINATION FOR HEALTHY AGING

myHMB® (beta-hydroxy-beta-methylbutyrate) **boosts muscle health** in older adults by both stimulating protein synthesis and reducing muscle breakdown. Higher Vitamin D₃ levels are also associated with greater strength and superior muscle function, especially in older adults.

Studies indicate that the combination of myHMB® and Vitamin D₃ can boost effects, helping improve muscle function. A recent year long study even shows that the benefits of myHMB® and Vitamin D₃ are apparent in **both exercising and non-exercising older adults**.



Healthy Muscles. Healthy Life. Learn more at www.myhmb.com/nih

These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.



Immunity Goodness works with trends to create great-tasting functional chocolate for healthy aging and beyond. The business began by working with immunity chocolates and has since expanded to collaborate with clients across the nutraceutical space to create bite-sized servings of Belgian chocolate that include science-backed ingredients matching supplier dosage specifications. The company is supported by a nationwide team of pharmacists, doctors, scientists, culinary-trained chefs and flavor technologists to create a specific formula and branding strategy for each ingredient or blend.

“It’s a learned skill for how to infuse chocolate and make it work based on a number of factors,” Little said. “We don’t use [flavor] blockers. Instead, we try to use our experience to match different natural flavors to offset the bitterness or rooty taste of a particular supplement.”

The use of chocolate as a medium also informs a consumer’s awareness of the range of possibilities available to support health. Chocolate “definitely changes the perception in terms of it being a treat rather than a ‘medication,’” shared AIDP president Mark Thurston. “These are food supplements ... and we’re just supplementing our diets with them.”

Moving away from medication-focused marketing and formulation is a growing trend.

“Consumers—no matter their age—are more than just their medical conditions,” Balanko emphasized. “Younger consumers who manage health conditions are not viewed this way, and so the emphasis on medicalized language when speaking to older consumers can create a sense of feeling singled out, which can be highly off-putting.”

Ingredients for healthy aging

The number of ingredients that have been researched to address the range of healthy aging needs is large and wide. We’ve highlighted a few that could be added to a healthy aging formulation, or innovated on their own to address the sector’s changing landscape.

Nicotinamide mononucleotide (NMN)

NAD⁺ (nicotinamide adenine dinucleotide) is a coenzyme essential for cell and organ function. Its breakdown in the body is considered a central cause of aging. By middle age, levels are generally half of what they were in youth. However, they can be increased by activating enzymes that increase its synthesis, inhibiting those that degrade it, and supplementing with NAD precursors, such as nicotinamide mononucleotide (NMN). NMN has been found to reduce age-related inflammation, support insulin and mitochondria function, as well as support neuron function in the brain.²

Choline

According to a National Institutes of Health (NIH) [fact sheet](#), choline is essential for metabolism and to maintain cell integrity. It supports neurotransmitters that affect memory, mood and muscle control, and deficiency has been associated with Alzheimer’s disease. It also reduces blood pressure and supports cardiovascular health.

Alpha-GPC (glycerylphosphorylcholine) is a cognitive ingredient Double Wood uses to support choline levels and cognitive function.³

Omega-3

The EPA (eicosapentaenoic acid) and DHA (docosahexaenoic acid) in omega-3s may help reduce the risk of premature death.⁴ Low omega-3 levels have been linked to risk factors,⁵ while study subjects with higher levels of omega-3 DHA were found to be half as likely to get Alzheimer's disease.⁶

Bill Harris, Ph.D., president of the Fatty Acid Research Institute (FARI) and founder of OmegaQuant analytics, lamented that most people don't get enough omega-3 fatty acids from their diets. He advocates for an objective measure of omega-3 status as a "potentially useful biomarker in assessing longevity in aging populations."



Astaxanthin

Astaxanthin offers potential benefits for muscle and bone,⁷ and can support healthy skin by improving elasticity, moisture, hyperpigmentation and wrinkle formation.⁸ It also protects against ultraviolet (UV) damage,⁹ and supports cholesterol and cardiovascular health.¹⁰ It may aid in preventing dementia¹¹ by addressing the mitochondrial dysfunction that leads to the production of damaging free radicals in the brain.¹² Astaxanthin also protects eye health through improved blood flow¹³ and reduction in oxidation.¹⁴

Ingredients for cognition

"The aging process can hamper proper blood flow, especially to the areas of the body that need it most, like the brain," said Katie Emerson, manager of scientific affairs, Nutrition21.

Bonded arginine silicate, such as that found in Nutrition21's Nitrosigine, has been found to improve cognitive function such as memory, attention, language and processing speed, with as much as 27% improvement for immediate memory.¹⁵

SweetMoodz chocolates from Immunity Goodness come in a few different varieties, including focus & memory (aka "No Senior Moments"), which contains NAC (N-acetyl-L-cysteine), acetyl carnitine, BacoMind (Bacopa monnieri) extract, tetrahydrocurcumin extract, resveratrol and B vitamins 6, 9 and 12. Each chocolate piece is one serving and contains 30 grams of sugar and 2 grams of fat.

Magtein (magnesium L-threonate) supports brain function and memory,¹⁶ as does bacopa.¹⁷

AIDP has partnered with Immunity Goodness to create both a raspberry lemonade flavored chocolate with a dose of Magtein, and a BacoMind chocolate that includes bacopa to support healthy aging.

The chocolate-based fats also improve the stability of some of the fat-based actives, more so than if they were formulated in a water/beverage format, Thurston said.

Ingredients for youthful skin

Sulforaphane, found in all cruciferous vegetables, is most potent in broccoli sprouts. Oxidative stress causes the breakdown of collagen,¹⁸ and sulforaphane, such as that found in BROCC SHOT, can reduce premature skin aging by helping maintain collagen levels¹⁹ and protecting against photoaging.²⁰



Containing Baltic amber, Elina Organics' Ambra Lift Elixir was the 2019 winner of the Dermascope Aestheticians' Choice Awards for Best Anti-Aging Moisturizer. It works by supporting Sirtuin-1, known to control metabolic processes, increasing energy stores and protecting against metabolic disease.²¹ The product can stimulate collagen production within 48 hours to potentially aid in minimizing wrinkles, enhancing antioxidant action, and reducing inflammation while lifting and firming skin for a more youthful appearance, according to an unpublished Genemarkers study.

"Consumers are intervening a lot earlier than previous generations when it comes to aging," Harris said. "And those who have a vested interest in health, fitness and nutrition are certainly paying attention to the latest information and research on ways to age gracefully."



Danielle Rose is a researcher, journalist, writer, editor and educator with a focus on creating well-researched articles that foster a better understanding of today's changing world. She has been writing professionally since 2005 in the field of health, as well as on a wide range of lifestyle and local/current event topics such as community resources, alternative healing, parenting and food.

References

- 1 Banerjee D et al. "Not a disease: a global call for action urging revision of the ICD-11 classification of old age." *Lancet*. 2021;2(10):E610-E612.
- 2 Imai SI. "The NAD World 2.0: the importance of the inter-tissue communication mediated by NAMPT/NAD+/SIRT1 in mammalian aging and longevity control." *NPJ Syst Biol Appl*. 2016;2:16018.
- 3 Lee SH et al. "Late treatment with choline alfoscerate (l-alpha glycerylphosphorylcholine, -GPC) increases hippocampal neurogenesis and provides protection against seizure-induced neuronal death and cognitive impairment." *Brain Res*. 2017;1654(Pt A):66-76.
- 4 Harris WS et al. "Blood n-3 fatty acid levels and total and cause-specific mortality from 17 prospective studies." *Nat Commun*. 2021;12:2329.
- 5 McBurney M et al. "Using an erythrocyte fatty acid fingerprint to predict risk of all-cause mortality: the Framingham Offspring Cohort." *Am J Clin Nutr*. 2021;114(4):1447-1454.
- 6 Sala-Vila A et al. "Red Blood Cell DHA Is Inversely Associated with Risk of Incident Alzheimer's Disease and All-Cause Dementia: Framingham Offspring Study." *Nutrients*. 2022;14(12):2408.
- 7 Alugoju P et al. "Health benefits of astaxanthin against age-related diseases of multiple organs: A comprehensive review." *Crit Rev Food Sci Nutr*. 2022:1-66. Online ahead of print.
- 8 Tominaga K et al. "Cosmetic benefits of astaxanthin on humans subjects." *Acta Biochim Pol*. 2012;59(1):43-47.
- 9 Ito N et al. "The Protective Role of Astaxanthin for UV-Induced Skin Deterioration in Healthy People-A Randomized, Double-Blind, Placebo-Controlled Trial." *Nutrients*. 2018;10(7):817.
- 10 Yoshida H et al. "Administration of natural astaxanthin increases serum HDL-cholesterol and adiponectin in subjects with mild hyperlipidemia." *Atherosclerosis*. 2010;209(2):520-523.
- 11 Nakagawa K et al. "Antioxidant effect of astaxanthin on phospholipid peroxidation in human erythrocytes." *Br J Nutr*. 2011;105(11):1563-1571.
- 12 Shigenaga MK et al. "Oxidative damage and mitochondrial decay in aging." *Proc Natl Acad Sci USA*. 1994;91(23):10771-10778.
- 13 Saito M et al. "Astaxanthin increases choroidal blood flow velocity." *Graefes Arch Clin Exp Ophthalmol*. 2012;250(2):239-245.
- 14 Hashimoto H et al. "The effect of astaxanthin on vascular endothelial growth factor (VEGF) levels and peroxidation reactions in the aqueous humor." *J Clin Biochem Nutr*. 2016;59(1):10-5.
- 15 Gills JL et al. "Acute Inositol-Stabilized Arginine Silicate Improves Cognitive Outcomes in Healthy Adults." *Nutrients*. 2021;13(12):4272.
- 16 Wang J et al. "Magnesium L-threonate prevents and restores memory deficits associated with neuropathic pain by inhibition of TNF- α ." *Pain Physician*. 2013;16(5):E563-E575.
- 17 Kumar N et al. "Efficacy of Standardized Extract of Bacopa monnieri (Bacognize) on Cognitive Functions of Medical Students: A Six-Week, Randomized Placebo-Controlled Trial." *Evid Based Complement Altern Med*. 2016;2016:4103423.
- 18 Umbayev B et al. "Galactose-Induced Skin Aging: The Role of Oxidative Stress." *Oxid Med Cell Longev*. 2020;2020:7145656.
- 19 Ko HJ et al. "Sulforaphane controls the release of paracrine factors by keratinocytes and thus mitigates particulate matter-induced premature skin aging by suppressing melanogenesis and maintaining collagen homeostasis." *Phytomedicine*. 2020;77:153276.
- 20 Chairprasongsuk A et al. "Activation of Nrf2 Reduces UVA-Mediated MMP-1 Upregulation via MAPK/AP-1 Signaling Cascades: The Photoprotective Effects of Sulforaphane and Hispidulin." *J Pharmacol Exp Ther*. 2017;360(3):388-398.
- 21 Nogueiras R et al. "Sirtuin 1 and sirtuin 3: physiological modulators of metabolism." *Physiol Rev*. 2012;92(3):1479-1514.



Shout Out!

Related content you
might be interested in

Creative approaches to branding and product positioning – podcast

Marc Brush, principal at the Bend consultancy, honed his market research bona fides running *Nutrition Business Journal*, but now he's helping shape the pursuit of personalized health care and nutrition.

[LEARN MORE HERE](#)

**NO MATTER WHAT APPLICATION YOU
CHOOSE, IT'S SURE TO BE MEMORABLE.**



BacoMindTM

World's Best Bacopa with 9 Bioactives for Brain Health

Customers want more functional products, and the cognitive enhancement market is projected to reach \$11.6B. BacoMind[®], the world's best bacopa is a patented, clinically tested, memory and cognition-enhancing, full spectrum extract with 9 bioactives. **The first GRAS, food-grade Bacopa nootropic, BacoMind[®] is suitable for food, beverage, and nutraceutical applications. Together with BacoMind[®], you can build a more memorable product.**



Want to know more?



naturalremedy.com



hhp@naturalremedy.com



Supplement formulation and healthy aging

by Charles DeVos



From bone density, cardiovascular and circulatory issues to cognitive ability and skin care, supplements can aim to cover a broad spectrum of health concerns for consumers looking for support as they get older.

For brands looking to develop nutritional products for the healthy aging space, a focused strategy targeting a few key areas can be very effective, rather than an “everything but the kitchen sink” approach.

It’s also important to remember that supplementation for healthy aging doesn’t have to wait until consumers reach their 50s or 60s, or when they get diagnosed with a particular ailment. Opportunities abound for brands to promote their products to younger audiences, provide support at an earlier age and help consumers prevent and reduce the risks of certain health issues that can arise further down the road.

Additional guidance for brands looking to develop products in the healthy aging space is to remember that anti-aging is not just skin deep. Brands need to consider the bigger picture, including nutritional ingredients to support the body internally and externally, because looking good on the outside is also impacted by whether the body is functioning properly inside.

Key ingredients for healthy aging inside and out

When thinking about healthy aging supplementation, one of the more common ingredients that comes to mind in traditional supplement formulas has been [glucosamine chondroitin](#) for joint health and osteoarthritis (OA) support. This is still a valuable ingredient, but as formulating specifically for the healthy aging market has evolved, some other essential ingredients also stand out in the space for brands to tap into.

Calcium

Calcium deficiencies increase as people get older, and the body begins to offset this by taking [calcium](#) from its own bones for heart, cardiovascular, muscle and other areas where it’s needed. These deficiencies can lead to brittle bones, osteoporosis and other associated issues as people age, so including calcium in a supplement formulation can be extremely beneficial for consumers concerned about these issues. The addition of nutrients such as vitamins K and D can also help with calcium absorption.

Coenzyme (Co)Q10

An antioxidant the body produces naturally, [CoQ10](#) declines with age. The nutrient can be included in a variety of categories associated with aging including heart health, blood sugar management, cognitive

Opportunities abound for brands to promote products to younger audiences, provide support at an earlier age, and help consumers prevent and reduce the risks of certain health issues that can arise further down the road.

function and energy management, among others. While foods such as meat, fish and nuts can help, they are not significant enough sources to increase CoQ10 levels in the body, so this is another valuable ingredient in the healthy aging supplement toolbox.

Magnesium

Magnesium plays a major role in helping the body absorb calcium and promote muscle, nerve and heart functions. Also, [magnesium](#) supplementation is a popular tool for addressing deficiencies, which can have a negative impact on several areas of health, such as heart health, blood sugar health and inflammation management.



Vitamins B6 and B12

To address cognitive issues associated with aging, formulators often include vitamins [B6](#) and [B12](#) in supplementation to help maintain brain function, as well as to provide bone health support.

Collagen

[Collagen](#) is an abundant protein found in the body. Used to make connective tissue, it is a major component of bone, skin, muscles, tendons and cartilage, helping to make tissues strong and resilient. A multicollagen will offer the combination of all five [types](#) of collagen, as it's sourced from beef, chicken, fish and eggshell membrane. Because these different types of collagen benefit different functions in different parts of the body, such as tensile strength and stretching of ligaments and organs, the use of multicollagen in healthy aging product development can be a great supplement addition.

Hyaluronic acid

A slippery substance produced endogenously, [hyaluronic acid](#) is found throughout the body, particularly in eyes, joints and skin. Among the healthy aging formulation targets for hyaluronic acid supplementation are improved joint mobility, skin hydration and flexibility, as well as wound healing and scar reduction.

Vitamin D

Awareness of the importance of [vitamin D](#), which is fat soluble, has continued to increase over the past decade, in part due to the increase in recommended dosages. Top health categories for vitamin D not only include bone health and calcium absorption, but also support for other cellular functions in the body, including anti-inflammatory, antioxidant, immune health, muscle function and brain cell activity. While direct sun exposure is a natural source of vitamin D, the risk of skin damage and cancer needs to be considered. Including vitamin D in supplementation is important, and its popularity will continue to grow as new science and studies regarding the benefits continue to emerge.

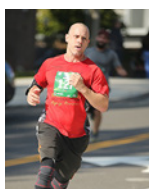




Looking ahead in the healthy aging supplements space

Brands in the healthy aging space shouldn't limit their audience to an older aging population. As the importance and awareness of maintaining one's health continues to increase due to factors such as Covid-19, broadening the potential scope of products to younger demographics such as 18- to 30-year-olds as preventive health support can provide new channels in which brands can diversify and expand. Adapting marketing to be more fun and appealing to a variety of lifestyles and through social media are a few ways companies can consider reaching a wider audience. For example, we're seeing some brands offering recipes and ways to include ingredients such as multicollagen products in baking and other cooking methods, which is a great way to broaden one's reach.

With all of the possibilities and formulation options for product development in the healthy aging market, we believe that positioning products holistically in combination with exercise and diet, and encouraging consumers to be mindful of taking time to focus on their day-to-day health at any age is also very important. ✦



Charles DeVos is a senior sales executive for [Lief Labs](#). He has been in the health and fitness industry for the past 20 years and has trained in multiple physical disciplines including gymnastics, wrestling, martial arts, body building and marathon running. Based in Valencia, California, Lief Labs is a premier formulation and product development innovator and manufacturer of dietary supplements.



Shout Out!

Related content you might be interested in

Insider in the Afternoon: If only Ponce de Leon knew nutrition — video

Todd Runestad from Informa Markets and Ola Lessard from HempFusion and Probulin consider the role of nutrition in staying young, in a discussion with NutriGenetics' Ann Louise Gittleman, author of the book "Radical Longevity."

[LEARN MORE HERE](#)



Revolutionary natural beauty-from-within ingredient for strong & healthy hair

FINALIST 
NUTRA
INGREDIENTS USA
AWARDS 2022

Kerانات™ is an innovative, unique ingredient coming from millet which contains a very rare molecule: the miliacine.

Our experts have patented a miliacine encapsulated system to enhance Kerانات™ efficacy.

- 2 clinical studies
- 2 scientific publications
- Sustainably sourced
- Made in France
- Patented

www.kerانات.fr 

ROBERTET
HEALTH & BEAUTY

Expert in nutricosmetics

Proactive prevention: Looking to the future of supplements for seniors

by Jon Copeland

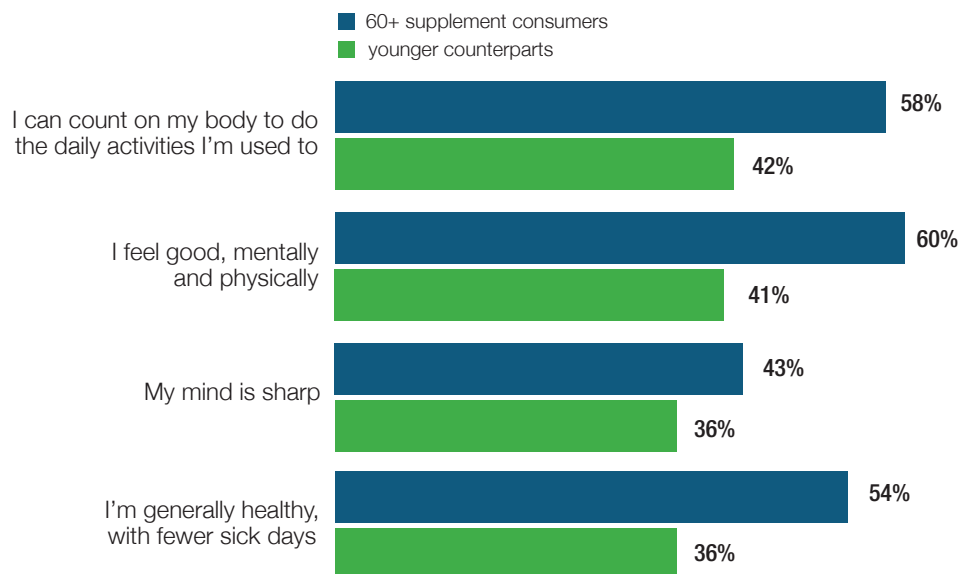
The collective experience of U.S. seniors has evolved as people are living longer, making them a sought-after—but often misunderstood—demographic.

A 2021 federal agency report on [seniors in America](#) showed that from 1900 to 2019, the percentage of Americans age 65 and older rose from just over 4% to 16%, a seventeenfold increase in size from 3.1 million to 54.1 million individuals. As the segment continues to grow in proportion to the overall population, seniors are undeniably a major segment of the U.S. market.

However, marketing strategies that work for mass audiences may be less effective with seniors because they have a unique set of needs and values. Because they are retired or nearing retirement, they spend their time differently than other audiences. They also shop and use media differently. When it comes to wellness and supplementation, they are more likely to look for certain types of supplements and ingredients for prevention and management of the need states which are most prevalent among people their age.

‘General wellness’ looks different to older audiences

To put it simply, supplement consumers in their golden years have different priorities than other vitamin, mineral and supplement shoppers. According to a new MarketPlace [survey](#) of supplement consumers, those aged 60+ are more likely than their younger counterparts to take supplements for general wellness (62% versus 53%), and more likely to agree that general wellness means:



Consumers: Senior demographic

When it comes to specific need states, those age 60 and older are more likely than average to take supplements for joint health (41%), bone health (39%) and heart health (38%). Furthermore, three out of five (63%) in the 60+ group said they take supplements as a proactive or preventative measure; a much higher rate than supplement consumers younger than 60 (44%).

Seniors take longer to jump on trends

Among the 60+ group, levels of interest in popular supplement ingredients such as vitamin D and probiotics, by and large, were similar to the average supplement shopper. However, the older subgroup was much less likely to have consumed certain trending ingredients like adaptogens and medicinal mushrooms. In fact, 93% of the 60+ cohort said they have not consumed any medicinal mushrooms in the past 12 months.

Seniors have different format preferences

Format and flavor preferences also varied by age group. For example, the survey showed that 60+ supplement consumers are more likely to consider daily consumption of pill formats (85% versus 62%). And when it comes to indulgent applications, they are more likely to prefer chocolates, candy bars and peanut butter cups as supplement formats. Conversely, the older group was much less likely than the younger group to say they would consider certain non-bar candy formats, such as lollipops, flavored powders or gum.

The practice of positioning brands to seniors can be effective, especially when mass-market products do not address their unique priorities and needs. To this end, a data-driven approach to discovery is useful for sorting out the values that matter most to the target audience. Having insights into factors that motivate purchase consideration and decision-making can help brands break through to older supplement consumers by speaking to those values. Those insights can then be applied to marketing strategy, creative direction and media outreach so that the brand appeals directly to what seniors look for in supplementation. ♦



Jon Copeland is a research strategist at [MarketPlace](#), a strategy and branding firm to food and beverage, pet and animal, and health and wellness businesses. From primary research studies on the impacts of Covid on supplement demand to white papers, he delivers valuable insight to MarketPlace's partners and the nutrition industry at large.



Natural Products Insider®

Contact us here

Natural Products Insider leads CPG brands from ideation through manufacturing, supporting the development of innovative, healthy and compliant products in the dietary supplement, functional food and beverage, and sports nutrition industries. As an official content provider for SupplySide, Natural Products Insider connects ingredient buyers and suppliers with executives across the health and nutrition marketplace.

