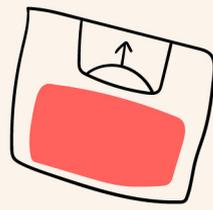


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How #supplements win in the age of #ozempic

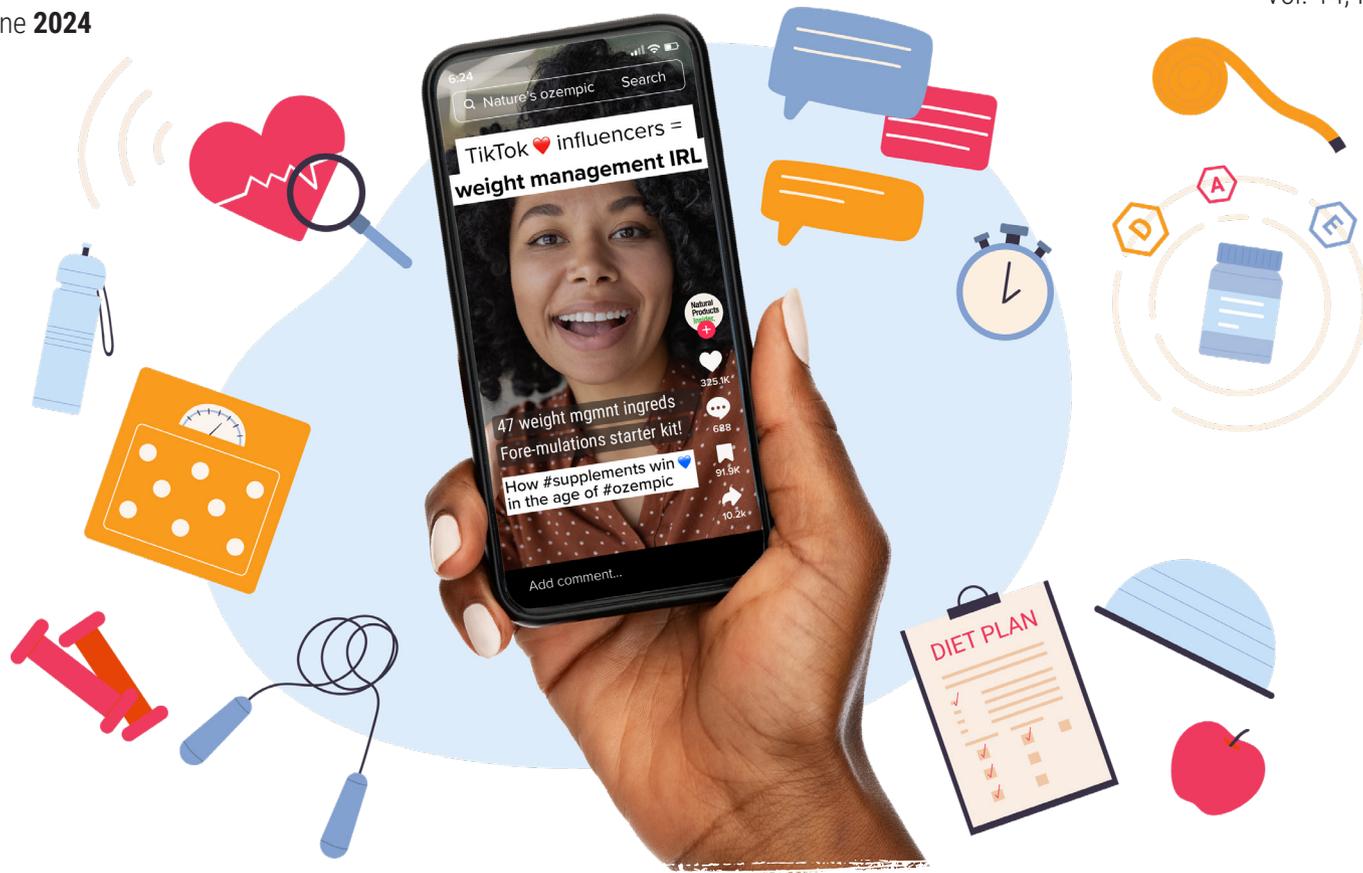
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4 VIEWPOINT

Supplements have a weighty problem

#Fail. Cheating brands, a lack of quality control and MIA regulators have the supplement industry fighting a trust battle, warns Content Director **Todd Runestad**.

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David Foreman reveals the downsides of losing muscle, and hot ingredients to help slim down in a healthy way. **#HerbalPharmacist**



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Supplements have a weighty problem

When shoppers go to a drugstore and pick up some painkillers, they might grab a bottle containing pills with 500 mg ibuprofen. They think: Here's a painkiller for my aching joints. They don't think: Does each pill really contain 500 mg of ibuprofen?

Dietary supplements don't have it quite that easy. Although according to a [Council for Responsible Nutrition \(CRN\) report](#), most Americans (77% of all U.S. adults and 84% of supplements users) believe the dietary supplement industry is trustworthy, and 85% think supplements are safe and of high quality.

Would that it were!

SUBOPTIMAL QUALITY IS RAMPANT

The latest piece of evidence comes from a [study](#) published May 1 in JAMA Network Open. In June 2023, researchers purchased 30 weight loss supplements from 12 online companies advertising military discounts. A number of the findings were concerning, but the key issue was that of 30 products tested, 25 had labels that did not accurately reflect the contents. Specifically, 24 products listed ingredients on the label that were not even detected in the actual products. Seven products contained hidden components not listed on the label.

Do the 84% of supplements users know this? Do the [8.7 million users](#) of ibuprofen in American think there's anything other than ibuprofen in that bottle? Know what I'm saying?

[We reported](#) how supplement quality leader NOW independently and third-party tested many products (including the company's own) purchased on Amazon from 2017 to 2023. The results were consistent with those found here. *(Editor's note for clarity: NOW was one of the few companies that scored exceptionally well.)*

Could legislation address this vexing and widespread issue? What would that look like?

[Mandatory product listing](#) (MPL) has been [kicked around lately](#). Would that solve this problem? The industry's [trade groups are split](#) on this issue.



But Steve Mister, CRN head, has a good take on MPLs that resonates and could go a long way toward solving the issues.

"If there was mandatory listing," Mister said, "the retailers would self-enforce it – if you're not on the list, they wouldn't carry your product. Amazon would say, 'We don't put you on our platform unless you show us you're on the listing.' Amazon is begging for things they can put in place to differentiate good from bad actors, and mandatory listing is an easy thing to implement."

When researchers test products on the market and they fail, it would be easier for FDA to locate these scofflaws – mostly fly-by-night companies. The 84% of supplement takers' heads might spin if they knew how many companies fail "Supplements 101: The product promise – what's on the label is what's in the bottle."

What if insiders like us – who, unlike consumers, are well aware that supplements are not like ibuprofen – could say with a straight face that all supplements are of unimpeachable quality? Something's got to give. The track records of cheating brands, Amazon's ineffective quality program and FDA inaction have each led to the only logical conclusion today: The cheating will continue unless or until something changes.

Todd Runestad
CONTENT DIRECTOR



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What are they weighting for?

CONSUMER DEMAND IS INCREASING IN CATEGORIES LIKE FAT BURNERS, APPETITE SUPPRESSANTS, HEALTHY METABOLISM SUPPORT AND BALANCED MEAL REPLACEMENT OPTIONS.

by Lisa Schofield



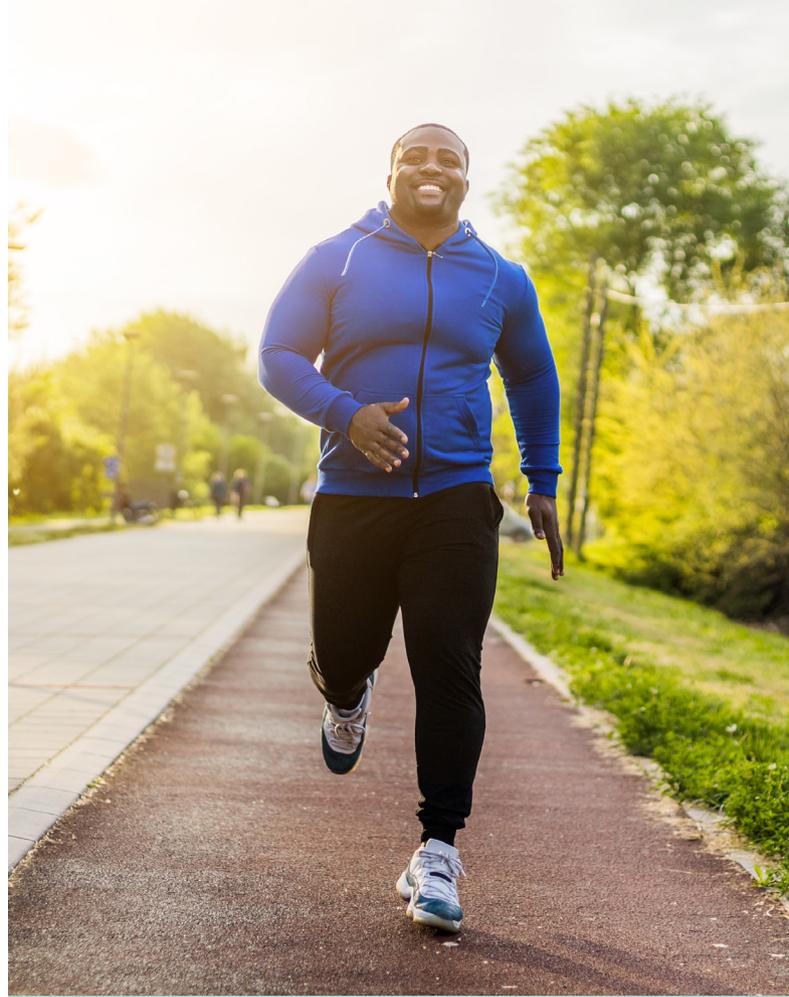
Ingredient suppliers have invested considerable resources to provide effective ingredients that address common blocks to weight loss for those who want to embark on a healthy lifestyle and get into shape.

Jordi Riera, chief business officer at Kaneka Probiotics, affirmed the category's potential, noting, "With a growing market encompassing a range of demographics and user needs, there is a need for scientifically backed, safe and effective supplements that address specific aspects of weight management."

A recent [Nutrition Business Journal survey](#) (powered by the Suzy online platform) of 1,029 consumers ages 20 to 73 found that nearly a quarter (23%) of respondents were using supplements to help them manage their weight, slim down and reduce fat.

Several ingredient suppliers have tested their weight management products in populations that ate nutritious diets and exercised, reflecting the mindset that a supplement can enhance broader-approach weight loss effects.

An example is Microphyt's PhaeOptim, derived from the microalgae strain *Phaeodactylum tricornutum*, and standardized to 4.4 mg of fucoxanthin. According to Christel Lemaire, marketing manager, in a 12-week double-blind



randomized [study](#), 37 overweight but healthy women followed a calorie-restricted diet with supervised exercise, also supplementing with 220 mg/day of PhaeOptim or placebo. Greater reductions in total energy intake and a 2.5-fold improvement in aerobic capacity were observed in the PhaeOptim group when compared to placebo at six weeks and 12 weeks.

Slendacor, a patented blend of turmeric (*Curcuma longa*), moringa (*Moringa oleifera*) and curry leaf (*Murraya koenigii*) from PLT Health Solutions, has also been [studied](#) in healthy, non-obese men and women. According to Steve Fink, VP of marketing, consistent body weight reductions were observed, starting with statistically significant weight loss at two weeks. Participants averaged a total weight loss of nearly 12 pounds by the end of the study. The subjects taking Slendacor lost 2 inches in waist circumference and had no reduction in lean body mass. Further, Fink noted, "Slendacor was shown

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23% of consumers are using **supplements to help** them manage their weight, slim down and reduce fat.



to be six times more effective than diet and exercise alone in reducing weight, and four times better than placebo at improving body mass index.”

THERMOGENESIS

Thermogenesis is a sought-after benefit by those who rely on exercise to burn fat, and it remains an attractive subcategory of weight management – along with relevance for sports nutrition – giving it crossover appeal.

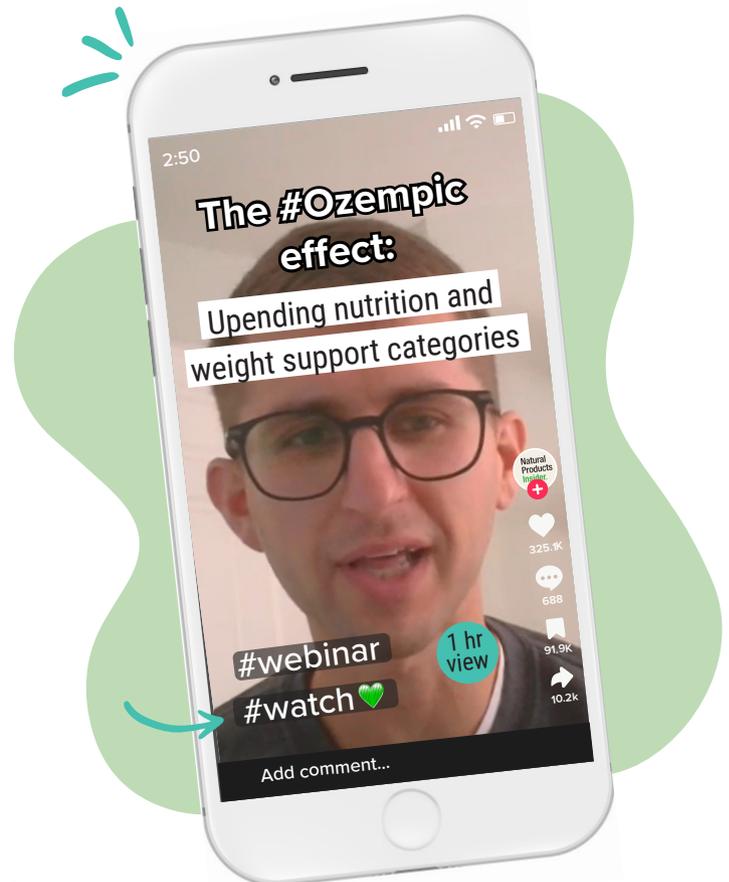
Slendacor’s mechanism of action was shown in studies to increase expression of [UCP1](#) (uncoupling protein) and promote a [metabolic shift](#) from white to beige or brown adipose tissue. A 2021 [human clinical trial](#) found that in only one week of a single daily dose of Slendacor, resting energy expenditure (REE) without a stimulant effect increased 15.2%.

“In 2023, Slendacor received an updated license from the Natural and Non-prescription Health Products Directorate (NNHPD) of Health Canada and can make nine allowable claims,” Fink shared.

A [preclinical study](#) showed that Sabinsa’s CurCousin induced thermogenesis in high-fat diet-induced obesity models. CurCousin features the active calebin-A, an analog of curcumin. Anurag Pande, Ph.D., VP of scientific affairs, noted, “Sabinsa’s R&D discovered calebin-A is an excellent metabolic support compound and

developed a nature identical synthetic form with 99% calebin-A.”

A [human clinical study](#) of twice daily doses of 25 mg CurCousin for 90 days showed a significant reduction in body weight and body mass index (BMI) in the calebin-A group compared with placebo, as well as marked changes in serum biomarkers like leptin, adiponectin and cortisol, along with improved ↓





blood lipid profiles.

The unique compound homoeriodictyol, found in Mibelle Biochemistry's SantEnergy Nu Santa herba (*Eriodictyon californicum*, also known as Yerba Santa and a member of the borage family) leaf extract, "[has shown](#) caffeine-like energizing and stimulating effects," Torsten Grothe, Ph.D., head of food and health at Mibelle, reported. "It activates the activity of the human adenosine receptor, a protein expressed in adipose tissue that regulates lipolysis and inflammation. The same receptor also mediates the benefits of caffeine."

In the aforementioned clinical study of 50 obese women, subjects consuming 400 mg of SantEnergy Nu for 12 weeks demonstrated a significant reduction in body weight and body fat, as well as normalization of the satiety hormone leptin. Grothe noted the participants were instructed not to change their current lifestyles during the study duration.

"We will continue research on the mechanisms involved," he said, "but it appears that SantEnergy Nu is able to increase energy and normalize satiety hormones to control appetite." He also suggested that could make the supplement a candidate for helping individuals with known leptin resistance.

APPETITE MANAGEMENT

For consumers who gain weight slowly because they overindulge in comfort foods, one way to lose that weight is to control the runaway appetite that led to the extra pounds. Reducing food intake while attempting to eliminate high-fat, high-calorie foods is an effort often met with failure (not to mention creating constant hangry-ness).

Normally, the hunger signal occurs when the body needs macronutrients to process – but appetite is the craving, the desire to masticate something tasty. And this is the sweet spot (pun intended) for weight management supplements.

CitruSlim, from HP Ingredients, is a proprietary blend of a patented full-spectrum Italian citrus bergamot polyphenolic extract and a patented *Eurycoma longifolia* (the latter is commonly known as tongkat ali) extract. In a 12-week [human clinical study](#), bergamonte – a key ingredient in CitruSlim – significantly reduced body weight and BMI. This correlated with a significant reduction of circulating hormones balancing caloric intake, including leptin, ghrelin and upregulation of adiponectin.

CitruSlim was then [evaluated](#) for body weight management impact in 97 obese individuals. The participants supplemented with either CitruSlim high-dose (HD, 400 mg), low-dose (LD, 200 mg) or placebo for 112 days. At the end of the study, ↓





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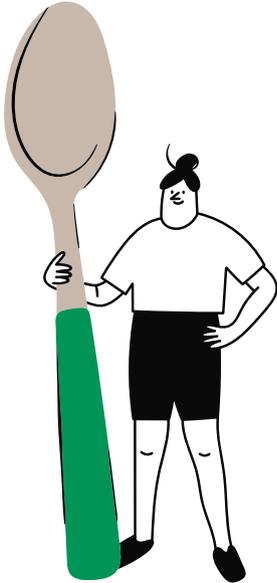


Liquid



Drink Mix
Powder

State of the market



One way to lose weight is to control the **runaway appetite** that led to the extra pounds.



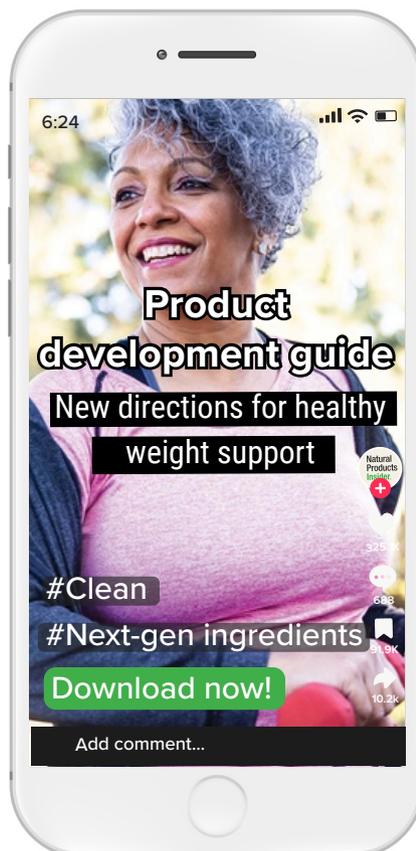
CitruSlim HD and LD significantly reduced BMI compared to the placebo group, leading the authors to conclude CitruSlim was tied to body weight reduction in obese participants.

Kemin's Slendesta promotes early-onset satiety. Its featured compound, proteinase inhibitor II (PI2), was [shown](#) to aid in appetite control for effective weight management by enhancing the production of cholecystokinin, which promotes feelings of fullness.

A newer offering is WellVine, a coastal chardonnay upcycled whole food product made from pressed and milled coastal chardonnay grapes, from Sonomaceuticals LLC. According to Fanny Lee, Ph.D., research program manager and author of published research exploring WellVine's benefits, a secondary outcome from a recent [small clinical trial](#) found that participants who consumed WellVine blends (higher ratio of chardonnay extract blended with WellVine and higher ratio of WellVine blended with chardonnay extract), experienced reduced subjective feelings of hunger.

Here's where it gets a little interesting — while ghrelin

levels were the same, the WellVine blend was found to increase satiety through influencing the hormone peptide YY, responsible for controlling appetite, Lee pointed out. "We are unclear of what mechanistically contributed to the decreased feelings of hunger," she commented. "More work needs to be done, as this was a secondary aim of the study and the hormones did not align with the subjective feelings observed, pointing to the complexity of eating behavior."



BIOTICS

The biotics field is blooming with new prebiotic, probiotic and postbiotic strain development and research.

According to Lizbeth Cabigas, business development manager at AIDP, "Prebiotics can modify microbiota by targeting bacteria that is already present in the large intestine." Her company's PreticX is a xylooligosaccharide (XOS) that she said is able to [promote gut bacteria balance](#) through increasing *Bifidobacterium* and optimizing the *Firmicutes/Bacteroidetes* ratio. She added, the ingredient "changes the gut microbiome, and allows for improved metabolic health and effective weight management." ↓



It's worthwhile to consider formulating weight management products with a side of blood sugar support.

The probiotic strain *Lactoplanibacillus plantarum* SKO-001, isolated from *Angelica gigas*, from Kolmar BNH, may promote weight loss by managing the gut microbiome. In a 12-week human [study](#) of 100 participants, those who supplemented with the probiotic exhibited reductions in body fat percentage, body fat mass and adiponectin levels, as compared to the placebo group. Additionally, the subcutaneous fat area and leptin levels were significantly reduced in the *L. plantarum* SKO-001 group.

Garcinol, the constituent in Sabinsa's Garcitrin, has been known to influence gut microbiota such as *Akkermansia muciniphala*, which can lead to weight loss, according to Pande. Results of a murine [study](#) showed an association between garcinol and reduced weight gain and relative visceral adipose tissue fat weight in a dose-dependent manner in subjects on a high-fat diet. Furthermore, the researchers found garcinol not only reversed high-fat-diet-induced gut dysbiosis — as shown by the reduced *Firmicutes*/*Bacteroidetes* ratios — but also helped control inflammation by increasing the intestinal commensal bacteria, *Akkermansia*.

Riera shared yet another ingredient approach. "With Kaneka's probiotic weight management solutions, we felt the need to help support ideal body weight while reducing the risks of rebound," he explained. The company's *Saccharomyces cerevisiae* extract product, marketed as LipiGO, helps [promote](#) weight loss through

selectively binding to saturated fats, reducing their absorption in the gut. The proprietary postbiotic is a blend of beta-glucan and chitin-chitosan (the combo as BGCC extract), a mix of polysaccharides found in the yeast cell wall. "Its mechanism of action has been shown to only bind to saturated fats, meaning food's nutritional intake isn't compromised, ultimately helping patients to reach an ideal body weight without risks of rebound," Riera added.

THE BLOOD GLUCOSE FACTOR

Many people who seek to drop a few pounds rarely think of the strong relationship between achieving and maintaining a healthy weight and their blood glucose/insulin function. But it's worthwhile to consider formulating weight management products with a side of blood sugar support.

Euromed's Pomanox (pomegranate extract) was shown to [regulate](#) blood glucose and insulin levels; [improve](#) cardiometabolic function and body composition; and [reduce](#) inflammation, oxidative stress and cortisol levels, according to Andrea Zangara, head of scientific ↓





communication and medical affairs. “Additionally, results of a [pilot study](#) indicated that participants who consumed Pomanox daily for three weeks felt less hungry, more satisfied and fuller after a meal compared to the placebo group,” she stated.

Another Euromed ingredient of fig extract, ABAlife, was shown to regulate [blood glucose and insulin levels](#) and lower the glycemic and insulinemic index of high glycemic index foods through its standardized content of naturally occurring abscisic acid (ABA), a phytohormone naturally high in fig fruits. ABAlife was also tied to [increasing](#) insulin sensitivity and glycemic control by modulating metabolic activity in skeletal muscle.

“ABA triggers cellular signaling pathways that enhance glucose uptake and increase the expression and membrane translocation of glucose transporter proteins, thus improving glucose homeostasis,” Zangara commented. “In conjunction with its blood-sugar support effects, ABAlife has also been demonstrated in this study to promote satiety and reduce cravings for high-sugar foods.”

Nutrition 21’s Chromax chromium picolinate [demonstrated](#) to provide several metabolic health benefits, such as improving body composition, maintaining lean muscle mass, supporting healthy carbohydrate and glucose metabolism,

promoting healthy insulin function, and managing cravings and appetite. Chromax has also been clinically [shown](#) to help manage carb cravings and appetite.

Catherine Kwik Uribe, Nutrition 21’s chief science officer, explained, “Once absorbed, chromium promotes the actions of insulin, which in turn can impact the body’s ability to take up carbohydrates, lipids and even amino acids by tissues. By affecting uptake of these nutrients, chromium supplementation may influence energy metabolism and, when consumed as part of a weight loss and exercise program, can help promote lean body mass.”

KEEPING DIETS IN MIND

As some consumers implement a gluten-free, paleo, vegan or similar dietary lifestyle change to try to positively impact their bodies, formulators can take note of opportunities to develop complementary products.

Intermittent fasting in particular has gained a lot of momentum. Julia Craven, VP of education at finished-product brand Enzymedica, is in the 



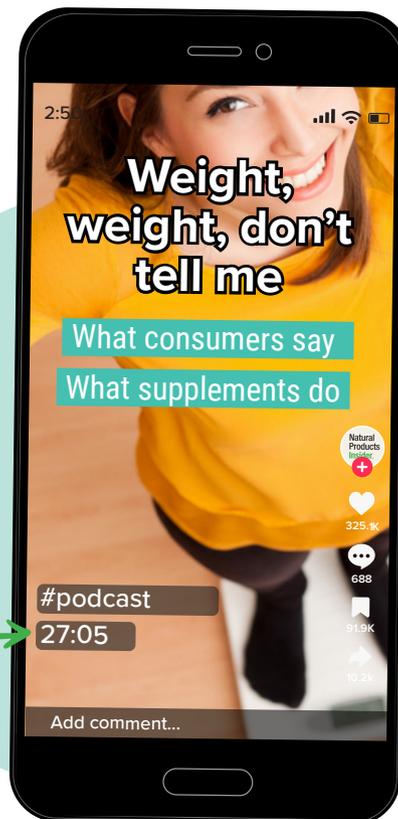
State of the market

field every week. “I keep hearing from retailers and consumers that they were interested in fasting or they had given it a try – but they felt like they needed some support,” she stated. “They wanted to find a way to get some nutrition but not break their fast. Consumers were combining several different products to support their fasts, but that was getting expensive and time-consuming. We decided to make it easier and more affordable, giving them three essentials in one product.”

Enzymedica’s Fasting Today product is a blend of electrolytes, baobab (*Adansonia*) fiber and essential amino acids (EAAs) aimed at helping intermittent fasters to remain energized.

When it comes to weight loss, Grothe brought well-rounded analysis. “The market for weight loss and weight management supplements is diverse and dynamic, which reflects the growing public interest in health and wellness,” he concluded. “Consumer demand for weight loss products with good clinical evidence and long-term safety profile is increasing, which we see in categories like fat burners, appetite suppressants, supporting healthy metabolism and balanced meal replacement options.”

With all the possibilities to help support safe and effective dropping of pounds and fat, the “weight” finally may be over! ♦



Lisa Schofield is a veteran writer and editor who got her start interviewing rock stars for national music magazines. She now writes and edits content for B2B media and suppliers in the natural health product industry. She has served as editor for Vitamin Retailer and Nutrition Industry Executive, and prior to that as associate editor for Whole Foods.

Between oatmeal and Ozempic

ACE SCI-GUY BLAKE EBERSOLE WEIGHS IN ON WHERE THE WILD WEST REALLY LIES WHEN IT COMES TO THE POST-MODERN WEIGHT LOSS PARADIGM.

by Blake Ebersole

It's now the 2020s, which sounds futuristic to begin with. We've got a supercomputer in every back pocket. And it's the age of Ozempic and AI (artificial intelligence).

We can reverse our metabolism in the same instant we can find an answer to any question. We've developed the technologies to snap our fingers, and boom! That magic injection. That one thing we needed to be happy, healthy and, of course, skinny.

Yet some of these apparently lifesaving technologies (like GLP [glucagon-like peptide]-1 drugs and computer doctors) are still in the early stages of, let's say, postmarket surveillance. That's the FDA term for "work in progress." Or as I describe it, "We're starting to look at the drug's side effects in real life and maybe we'll tell you later what we found out."

New technology isn't always the greatest, because we haven't experienced the future that's not arriving for a while. That's why I've never been a first-mover. I'm patient. I'd rather watch the first versions succeed or fail before forming an opinion. So I'd rather stick with the supplements and ingredients that have stood the test of time on the market for decades and undergone the rigors of clinical studies and meta-analyses.

Call me old-fashioned to prefer old supplements over new drugs. And my data's right there on [PubMed](#).



Let's back up and explain. GLP-1 agonist drugs like semaglutide (Ozempic) are developed to bind to GLP-1 receptors in a relatively predictable way, stimulating adenylyl cyclase and cAMP (cyclic adenosine monophosphate), which causes a number of metabolic benefits downstream. But you know what else stimulates adenylyl cyclase and cAMP? Lots of stuff in healthy diets, actually. Like caffeine. Alpha-lipoic acid. Catechins in tea. The adrenaline you get from riding a bicycle.

But here we are. Calling supplements the wild west. And saying that only a drug — a magic injection — is the key. That's capital-W Wild to me. Meanwhile, a desert of attention and care in our health care system exists in that space between recommending oatmeal in the morning and prescribing the drugs whose eventual withdrawal ends up reversing the problems they treat.

So we turn to TikTok. We've got red light. Cold ↓

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So we turn to TikTok. We've got red light. Cold water. Yellow sunglasses. And "nature's Ozempic" (aka **berberine**).

water. Yellow sunglasses. And "nature's Ozempic" (aka berberine).

But the prescribers aren't doctors — they're yoga-mom influencers or tank-top muscleheads with self-certified degrees in videography and monetizing. In a tapestry of money- and power-driven misinformation woven with both truth and fiction, it's a fool's errand to tear at the seams. The gig influencer economy is tough enough without the truth.

But hey, back to berberine — a really cool compound with actual potential to make an impact in well-designed studies. Clinical evidence is emerging, its [mechanism on GLP pathways](#) has been delineated and it appears to be [relatively safe](#). Same with some others, like [curcumin](#), [gardenia](#), and even foods like [soy](#) and [wheat](#).

Yet, as your doctor would say, "These haven't been studied like drugs are supposed to be studied." And this, always followed with, "Who knows what's in the bottle?" (This is an imaginary conversation based on millions of real ones.)

Well, doctor. What does postmarket surveillance and adverse event reporting data mean to you? If berberine is so popular and so unsafe and of poor quality, wouldn't we see more adverse event reports (AERs) than for your drug? (And by the way, are any of your patients experiencing a shortage or unaffordable costs

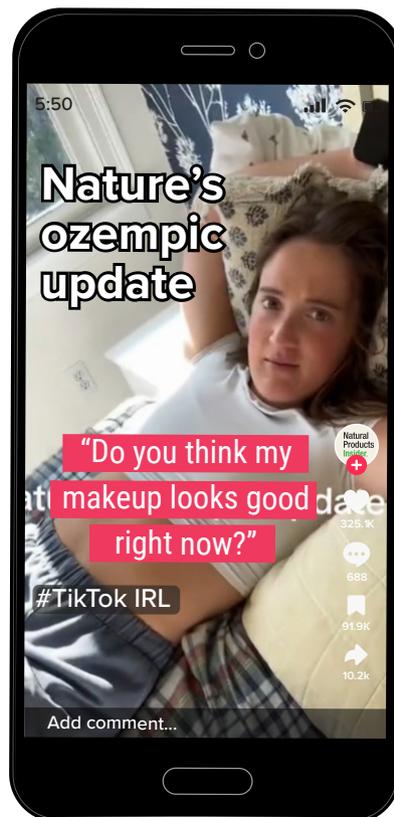
of the drug you prescribe for them?)

Many of us are old enough to remember the debacles of drugs once FDA approved before being later FDA rejected. Postmarket surveillance can be a real bitch. Some of the most famous cases involve drugs which acted so terrifically — and sometimes, irreversibly — on their targets that it tipped the homeostatic balance [down the rabbit hole](#) into dark inflammation-land. We didn't pick up the signals in the premarket studies. (Or did we?) Sometimes Alice needs to put down the potion and crawl out of the hole, but the profit motive is too enticing.

Back from Wonderland. Who's to say that GLP-1 is the best target to hit on the head with

a sledgehammer? Why not consider glucose transporter GLUT-4, the target for [cinnamon](#) and [probiotics](#)? Why not the GABA (gamma-aminobutyric acid) and dopamine receptors, which are targeted by, yes, GABA, lemon balm and others. Ancient Chinese herbs like [astragalus](#) and [Panax ginseng](#) are in play for GLP-1 activity, but with other activities as well. We've got enough options to look at.

It all sounds easy. But obesity and metabolic syndromes are not easy problems to solve. And let's not pretend that supplements can act alone or solve everyone's problems. The good thing is, we do have a bunch of other herbs and



If berberine is so popular and so unsafe and of poor quality, wouldn't we see more adverse event reports than for your drug?

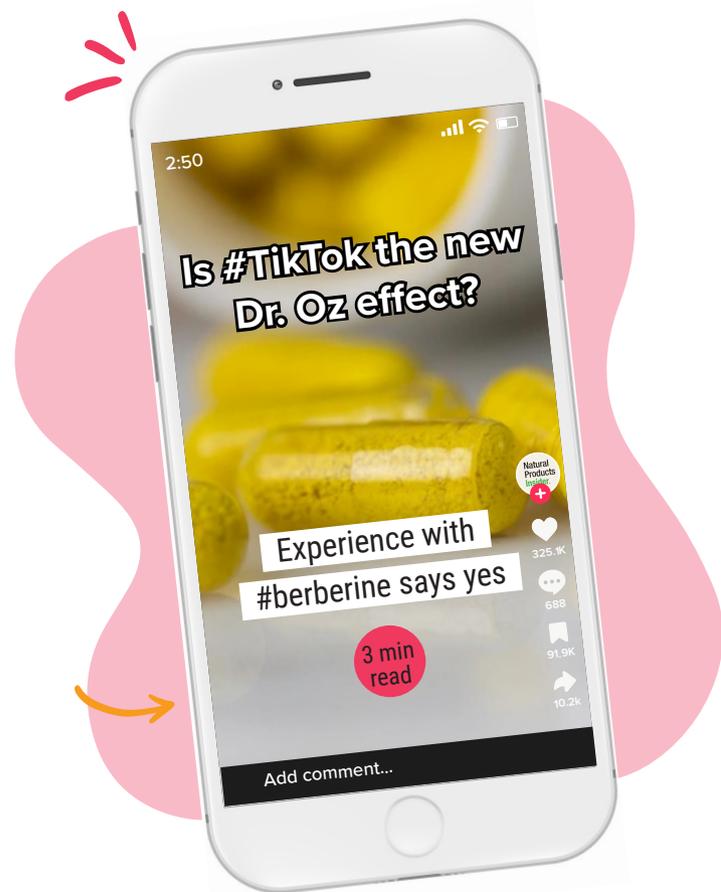
nutrients that work on the same or similar pathways, with dosages and effects in humans demonstrated on a substantial level. They're worth a try. (Although in many cases, they still need more investment to ensure they're produced correctly, dosed appropriately and measured for their effects – but that means lots of opportunity.)

Someone at some point before landmark research always has to say: "Hey, we have no idea if this will work, but let's study it anyway." But given the totality of science so far, we could soon consider a science-based combination of well-studied nutritional factors, with a sensible lifestyle plan to outweigh the benefit-risk calculation for GLP drugs. In fact, many are already working on this.

Once we start to study this stuff with better analytical tools (and maybe even AI), we might accelerate our knowledge and develop ways to stay healthy during that time in between oatmeal-for-breakfast and Ozempic-for-lunch.

Just maybe. And there I go with faith in technology on a whim. I'll try to stop doing that.

Clearly, making health a choice between one or the other – nutrition or drugs – is a false choice. Nutrition can't quite replace medications for people who need them. In cases where a drug is medically necessary, proper nutrition can help to augment the positives, blunt the negatives and correct nutrient deficiency. Let's just admit, at the very least, that neither oatmeal nor Ozempic alone are the answer. ✨



Blake Ebersole has led several botanical quality initiatives and formed collaborations with dozens of universities and research centers. As president of [NaturPro Scientific](#), Ebersole established quality compliance and product development services for supplements and ingredients such as ID Verified. Follow him on X (Twitter) at [@NaturalBlake](#).

Unraveling weight management: Body composition

THE SECRET TO LONG-TERM WEIGHT MANAGEMENT MAY BE HIDDEN IN AN AREA OFTEN OVERLOOKED: BODY COMPOSITION.

by David Foreman



In April 2023, Natural Products Insider published the digital magazine, “[Weight game: Rethinking supplements](#),” covering many aspects of the weight management market. A lot has changed in just one year, with the hottest area in medicine being the use of GLP-1 (glucagon-like peptide-1) agonists to lose weight.

Regretfully, the use of this category of medication triggers a significant loss in muscle mass (39-40% of weight loss was in lean mass). Even [in calorie-restrictive diets](#), people will shed a significant portion of their lean mass (up to 35% in normal weight people and 30% in overweight or obese people). A loss of skeletal muscle mass [reduces strength](#) and [lowers resting metabolic rate](#) (sometimes called basal metabolic rate). BMR is the minimum number of calories the body needs to sustain life, and breaks down [like this](#):

- Basic life processes: ~70% of total energy (example: breathing, heart pump, body temperature and transmission of hormones in the body).
- Activity-induced energy: ~20% of energy expenditure.
- Diet-related and food digestion: ~10% energy expenditure.

While many people celebrate their weight management program by seeing the number on the scale decreasing, what is happening beneath the surface may not be as beneficial

as they think. [In short](#), loss of lean body mass will also lower BMR and lead to subsequent weight gain. The secret, then, to long-term weight management may be hidden in an area often overlooked: Body composition.

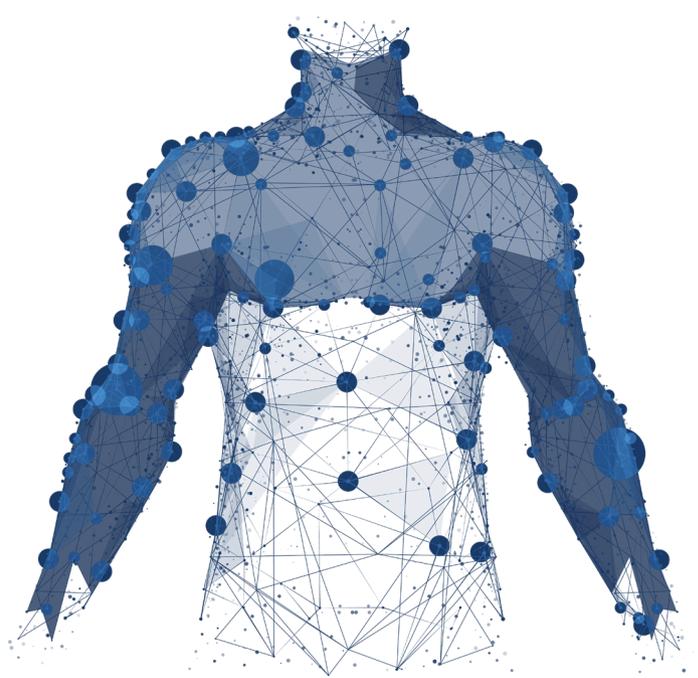
Body composition measures two areas: body fat and fat-free mass (lean mass). Body fat can be broken down into essential and excess. Essential body fat is found in a person’s organs, muscles and brain, and helps protect and regulate important functions. Excess fat — often referred to as visceral fat — can collect around one’s digestive organs and heart, as well as increase the risk of serious health issues. Fat-free mass is everything else — muscles, organs, fluids, bones, etc.

THE ELEPHANT IN THE ROOM

To make measurable and sustainable progress with weight management goals, people need a frank discussion about what truly matters: Decreasing body fat while maintaining or increasing lean mass. For decades, the dietary supplement and functional food and beverage market has taken advantage of consumers with quick-fix ingredients that did little to improve their body composition. Now is the time to lean on new science and some fantastic scientifically substantiated ingredients for weight management that have a positive impact on body composition: [↓](#)

click to go!

Now is the time to lean on new science and some **fantastic scientifically substantiated ingredients** for weight management that have a positive impact on body composition.



CHROMIUM PICOLINATE (as Chromax from Nutrition 21): [Research](#) from Chromax showed the ingredient aided in reducing body fat, improving lean body mass and positively affecting body composition.

CISSUS QUADRANGULARIS (as CQR-300 from Gateway Health Alliance): A [recent study](#) with CQR-300 showed a 12.8% reduction in body fat, 8.9% reduction in waist circumference and 7.7% reduction in hip circumference in just eight weeks.

CITRUS SINENSIS (L.) OSBECK (as MOROSIL from BIONAP): [Research](#) with MOROSIL in a six-month study showed improvements in body weight, BMI (body mass index), waist and hip circumference, and body composition.

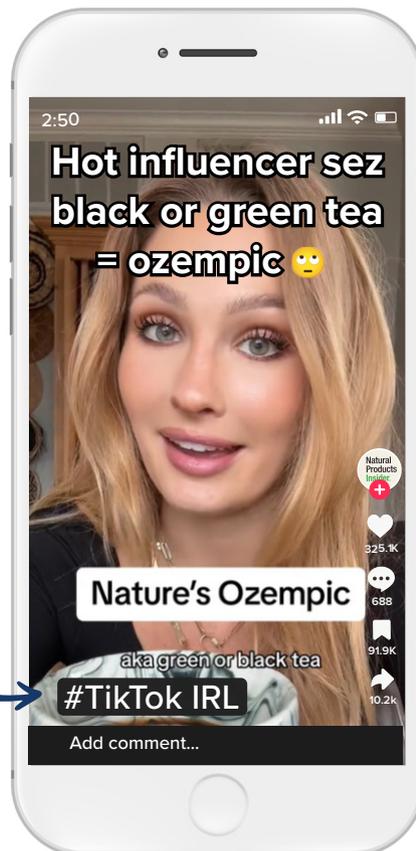
CITRUS POLYPHENOLS (as Sinetrol from Fytexia): This ingredient mimics the phenotype change from white to beige within adipose cells, i.e., from cells that store energy to metabolism-driven cells. In this way, Sinetrol prevents further storage of fat within adipose tissue. [Observed](#) with DEXA (dual energy x-ray absorptiometry) scan.

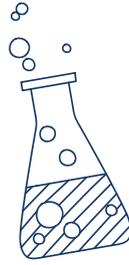
DICHROSTACHYS GLOMERATE (as Dyglomera from Gateway Health Alliance): Dyglomera was shown to [improve body composition](#) in 12 weeks. The percentage of body fat measured by DEXA showed a 22.85% reduction in the percentage of body fat.

ERIOICITRIN (as Eriomin from Ingredients by Nature): Eriomin does not currently have studies directly related to body composition, but is being included in this article due to the studies showing it naturally increases GLP-1 levels by [15% in one study](#) and [17% in another](#). Perhaps the increase in the body's natural production will support healthy weight management and improve body composition.

GYNOSTEMMA PENTAPHYLLUM leaf extract (as ActivAMP from Gencor Pacific): A 16-week [study with ActivAMP](#) showed via DEXA positive changes in body composition, including fat mass, lean mass and mass distribution – as well as improvements in hip and waist circumference.

IRVINGIA GABONENSIS (as IGOB131 from Gateway Health Alliance): Multiple clinical studies have shown the





Ingredients can be combined in many cases for a multipronged approach to healthier weight management products.

benefits of IGOB131 and its impact on metabolic health. [One study](#) of 102 overweight subjects showed statistically significant improvements in body weight and composition after 10 weeks, including an 18.4% reduction in body fat.

L. CURVATUS HY7601 AND L. PLANTARUM KY1032 (as FatSlim from hyLabs): [One clinical study](#) supported that FatSlim improved BMI, waist circumference, body fat mass and visceral fat area by decreasing the percentage of fat – with no loss in lean mass.

LIMOSILACTOBACILLUS FERMENTUM strains K7-Lb1, K8-Lb1, and K11-Lb3 (as SlimBiotic from SlimBiotics): A [2023 study](#) involving 180 subjects over three months showed improvements in body fat mass, body weight, visceral adipose tissue, waist circumference and hip-to-waist circumference.

MODIFIED CELLULOSE + CELADRIN (as TrisyneX from Things of That Nature): A [recent study](#) over eight weeks showed that taking TrisyneX significantly improved body weight, fat and overall body composition.

PHENYLCAPSAISIN (as aXivite from SEE Nutrition): [A study](#) with aXivite showed improved body composition by improving the lean-to-fat mass ratio by 7.1% and a fat mass loss of 5.2% in just 54 days, as measured by DEXA.

FINAL THOUGHTS

With a new awareness of the potential harm from weight management programs (e.g., excessive muscle loss), this is the perfect time for the dietary supplement and functional food and beverage industries to step up and offer safer solutions for the battle of the bulge. New studies should focus more on the impact on body composition and not just on overall body weight.

This article did not have the space to include all the underlying mechanisms of action of the ingredients mentioned. Yet, it is important to stress that ingredients can be combined in many cases for a multipronged approach to healthier weight management products. Taking the extra time to dig further into these mechanisms of action will help you create a novel product with multiple benefits to the body. ✦



David Foreman is a registered pharmacist, author and media personality known to consumers internationally as “[The Herbal Pharmacist](#).” A background in pharmacy and natural medicine puts Foreman in an elite class of health experts who can teach integrative medicine practices. He helps consumers achieve health and vitality through his four pillars of health: diet, exercise, spirituality and supplements. Foreman is a graduate of the University of South Carolina College of Pharmacy, currently serves on the Organic & Natural Health Association’s (O&N) scientific advisory board and is the author of “4 Pillars of Health: Heart Disease.”

Plant one right here

PHYTOCHEMICALS CAN
DIVERSIFY AGE-RELATED
MUSCLE LOSS AND WEIGHT
MANAGEMENT STRATEGIES.

by Corey Dungan

As people age, the need increases for diverse adult weight management strategies due to several factors, notably the prevalence and impact of age-related conditions like sarcopenia. Characterized by the loss of skeletal muscle mass, strength and function, sarcopenia can start as early as age 25, with a gradual decline of muscle mass per decade. By age 60, [this decline accelerates](#), leading to severe muscle loss in some individuals.

The consequences of sarcopenia are far-reaching, affecting strength, mobility and bone density, which in turn increases the risk of falls, fractures and osteoporosis among other quality-of-life issues. Hormonal changes associated with aging, such as decreases in growth hormone, testosterone and insulin-like growth factor (IGF), further contribute to muscle loss, exacerbating the need for effective weight management strategies tailored to the aging population.

Muscle loss prevention and related weight management strategies often involve regular resistance training, vitamin D intake and most importantly, ensuring adequate protein intake. [New recommendations](#) suggest older adults should aim for a protein intake of 1.0–1.3 grams per kilogram of body weight per day to maintain muscle mass and functionality.

Why is building muscle so important to weight management? Muscle tissue is more metabolically active than fat tissue, meaning it burns more calories at rest. So, by increasing muscle mass through resistance training, a

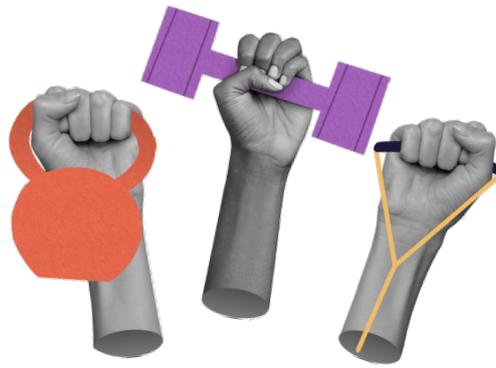


person effectively boosts basal metabolic rate (BMR) and increases the number of calories the body burns throughout the day, even when not exercising.

Individuals experiencing accelerated muscle atrophy can also better prevent and manage those challenges by incorporating phytochemicals, which are bioactive compounds tailored to target the signaling pathways responsible for muscle breakdown. This burgeoning area presents a range of opportunities for nutraceutical brands to explore; however, further research and dosage specifications need to be considered.

New guidelines have recently been established by an expert panel suggesting a daily intake of 400–600 mg of flavan-3-ols (types of polyphenols) can significantly improve cardiometabolic health. This shift in dietary recommendations highlights the benefits of flavan-3-ols – found in foods like cocoa and berries – in enhancing blood pressure, cholesterol levels and blood sugar control. Developed from extensive clinical research, [these guidelines](#) aim to inform both health professionals and consumers about the positive

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Building muscle is **vital** to weight management.

impacts of flavan-3-ols on health, steering away from the traditional focus on nutrient deficiencies.

THE PHYTOCHEMICAL SOLUTION

Phytochemicals are naturally occurring small molecular bioactive compounds found in plants, herbs, fruits, vegetables, fungi and marine sources. These compounds are responsible for the distinctive colors, aromas and flavors of these organisms. Unlike macronutrients such as proteins or fats, or micronutrients like magnesium or vitamin C, phytochemicals serve as secondary nutrients that protect plants from pathogens, UV (ultraviolet) radiation, viruses and other threats.

Similarly, when humans consume plants rich in vital phytonutrients such as flavonoids, anthocyanins and stilbenes, they may also benefit from the extensive cellular and immune protection these compounds [provide](#). Recently, interest has grown in identifying these compounds [due to](#) their potential health benefits and established safety profile.

PHYTOCHEMICALS SUPPORT MUSCLE AND WEIGHT

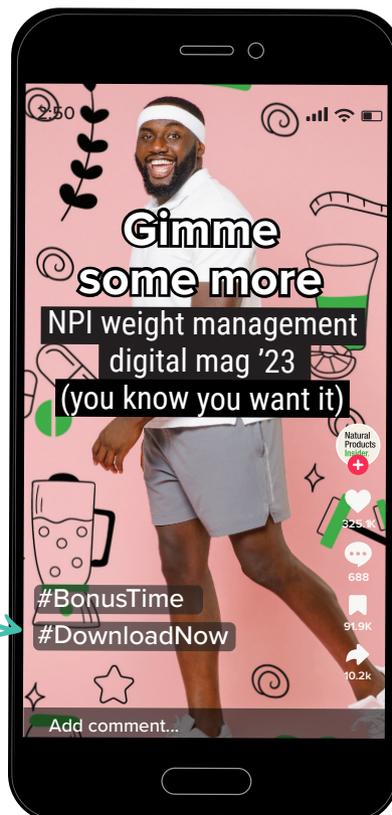
[Research indicates](#) that polyphenols – phytochemicals found in fruits, vegetables, nuts and seeds – can significantly counteract sarcopenia and muscle atrophy. These conditions are often exacerbated by inflammation,

oxidative stress and mitochondrial dysfunction, which affect muscle health. Polyphenols help by promoting muscle growth, enhancing regeneration, and improving muscle function and strength.

Their antioxidant and anti-inflammatory [properties](#) reduce oxidative stress and inflammation, which are crucial factors in aging and muscle loss. Thus, incorporating polyphenol-rich foods into the diets of older adults could be key in preserving muscle mass, strength and overall metabolic health during weight management, aiding in healthy aging. In addition to polyphenol-rich foods, the use of

polyphenol supplements may provide further support and be a valuable resource for aging adults who may not be getting these powerful ingredients through their regular daily diets.

Nutraceutical brands that want to explore polyphenols for use in supplement formulations aiming to aid with muscle mass and weight management should consider sources such as cocoa and green tea. These ingredients are exceptionally rich in catechins – a type of polyphenol known for their potent health benefits, particularly in combating muscle atrophy. [These catechins](#), including epicatechin in cocoa and epigallocatechin gallate (EGCG) in green tea, play a crucial role in addressing the mechanisms that lead to muscle loss. Additionally, ↓



Dark chocolate is another star ingredient for brands to consider when developing supplements that could aid in muscle support and weight management.



catechins have significant [anti-inflammatory effects](#). They help modulate the body's inflammatory response, which is often heightened during aging and can exacerbate muscle atrophy. By controlling inflammation, catechins aid in preserving muscle mass and strength.

Moreover, research has suggested that catechins can enhance mitochondrial function in muscle cells. Healthy mitochondria are crucial for energy production and vital for maintaining muscle strength and endurance. By improving mitochondrial activity, [catechins contribute](#) to better energy metabolism within muscle tissues,

thereby supporting muscle regeneration and reducing the risk of atrophy.

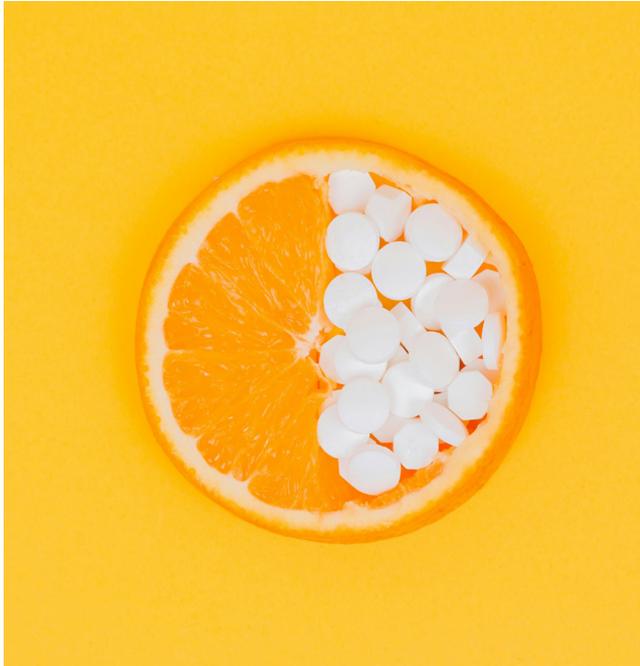
Regular consumption of cocoa and green tea, therefore, not only provides a delightful experience, but also supplies these vital catechins, which can be strategic in preventing muscle loss and promoting healthier aging. This makes them valuable dietary components, especially for older adults seeking to maintain muscle health and overall physical function.

Another star ingredient for brands to consider when developing supplements that could aid in muscle support and weight management is dark chocolate, which has grown popular again in recent years due to its rich cocoa polyphenol (catechin) content, known for its antioxidant properties. Regular exercise enhances muscle performance, but intense activity can cause oxidative stress and muscle damage. [One study](#) evaluated the impact of cocoa polyphenols on exercise-induced damage and performance by analyzing 13 randomized clinical trials involving 200 well-trained athletes. Results showed that cocoa polyphenols reduced oxidative stress caused by exercise but had inconsistent effects on inflammation and performance. Though these findings are not definitive, it does show that cocoa polyphenols can have a positive effect on exercise-related oxidative damage.



INNOVATION AND OUTLOOK

Some interesting studies support further exploration of the potential for product development of supplements targeting muscle loss and related weight management indications. Urolithins A and B – metabolites derived from the ↓



transformation of ellagic acid – have been found to have beneficial effects on muscle cells.

Urolithin A [acts](#) as a mitophagy activator, stimulating muscle function and exercise capacity by inducing autophagy and mitophagy in rodents. A great example currently in the marketplace comes from Amazentis, which launched Mitopure Urolithin A, an innovative supplement aimed at enhancing mitochondrial health.

Urolithin B [has been shown](#) to induce the growth and differentiation of muscle cells, as well as reduce muscle atrophy in denervation-induced muscle in mice. It achieves this by activating

protein synthesis, inhibiting protein degradation and activating the androgen receptor, which subsequently activates the mTOR (mammalian target of rapamycin) pathway. Urolithin B [also](#) suppresses the upregulation of ubiquitin ligases such as MAFbx/atrogin-1, MuRF-1 and myostatin.

As the use of phytochemicals in supplementation is still in early stages, bringing these bioactive compounds into the mainstream market requires additional research, education and consumer acceptance. By identifying promising bioactive ingredients through both public and private research efforts, companies can establish safe and effective dosages and market products that truly impact consumers.

Phytochemicals and plant bioactives are a largely untapped area with growing scientific support of their benefits. As this evidence increases, companies will need to innovate and integrate these ingredients into their products, enhancing their effectiveness and relevance in today's market. It is my hope that we will eventually establish daily recommended intakes for these compounds, not based on traditional vitamin deficiency models, but as [essential components](#) for healthy aging and preventive health to benefit consumers – as well as provide valuable growth opportunities for our industry. ♦



Corey Dungan is a product developer at [Lief Labs](#) specializing in the healthy aging sector. With more than seven years of experience in product development, R&D and regulatory affairs within the functional foods and supplement industries, he offers a wealth of deep and comprehensive industry knowledge. Based in Valencia, California, Lief Labs is a premier formulation and product development innovator and manufacturer of dietary supplements.

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