

Such a (Weight) Loss!

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Weight Management

Each year seems to bring a new diet fad. No matter what they're eating, supplements for weight are still in demand. Here's how ingredients help keep up.

Every decade has its fad to lose weight the easy way. In the early 1900s, you could buy tapeworms, which would eat all your food inside you (not a healthy idea); the cigarette diet was the bees' knees in the 1920s (also not recommended today); in the 1950s, the cabbage soup diet—a seven-day cabbage-soup-only diet—was the rage. The 70s had the Scarsdale Diet, the 80s had the Beverly Hills Diet, the 90s was Atkins and fat-free, while 2000s ushered in South Beach.

Now, it's all about keto and paleo. Some people cross-germinate with veganism and gluten free.

As the global population swells, so does its waistline, it seems, hence another new diet. Weight management was, is and will always be a strong demand in the industry, considering almost 39 percent of the U.S. adults are obese and almost 50 percent of Americans want to lose weight, according to the CDC (Centers for Disease Control and Prevention). Therefore, asserted Sandy Chien, PhD, vice president of innovative products at HORN, an IMCD company, California, there will always be a new diet fad. She noted that there are some studies that have shown the efficacy of weight loss on both keto (which focuses more on macronutrient consumption) and paleo (which focuses more on ideology).

"With the emergence of diets such as 'keto' and 'paleo,' and the increasing popularity of vegan and vegetarian lifestyles for their perceived health benefits, consumers may miss out on beneficial

nutrients from the consumption of key foods such as meat, carbohydrates, fruit etc.,” pointed out Juliana Erickson, senior marketing manager with Switzerland-based Lonza Consumer Health & Nutrition. “‘Trendy’ diets can give manufacturers the opportunity to extend product lines, or remarket products for specific health benefits,” she added.

Mariko Hill, product development executive, California-based Gencor Pacific believes that analyzing diet trends can move the industry forward by developing new ingredients and innovative formats to reflect and/or augment them. “However,” she commented, “whether any fad-diet is suitable for long-term health is yet to be known; we once believed ‘low-fat’ to be the solution for weight loss, however, look how society perceives it now.”

It’s not so much the diet as it is the individual, pointed out Sayantan Bhattacharya, category manager, weight management brands, OmniActive Health Technologies, New Jersey. “While it is popular to say that most people fail diets, the reality is most diets fail people,” he commented. The reason there is such a huge failure rate for many dieters is because each person’s needs are unique—what works for one often won’t work for another, because of the variations between such factors as metabolism, stress management, blood sugar response, food intolerances and genetics.

Therefore, he observed, personalization is probably more appropriate in the weight-management category than any other. “In weight management there is no one-size-fits-all solution or even one-size-fits-most,” he said, pointing to the growth and great results of personalized nutrition to help stem the obesity epidemic.

Alison Raban CFS, ingredient application scientist, BI, California, emphasized that in the ever-thriving weight-loss category, brands should always consider consumer diet trends when developing new dietary supplement/functional beverage-food producers seeking to augment trendy diets. “However,” she warned, “brands should also always do their due diligence to discern if it is a passing fad (i.e. green coffee bean extract) or a longer-term trend (i.e. ketogenic diet); fruitlessly chasing a fad and capitalizing on a trend can be hard to separate.”

Not-so-fad Research

Obesity’s causes and finding the easiest solutions continue to drive global research. Further, it’s become increasingly clear that just “being skinny” doesn’t mean looking or feeling good. Rather, the quest (rightfully so) among most individuals who want to lose weight is to also get into good physical shape. And more research is showing that this is the endpoint to aspire and work toward. There’s newer research that interests ingredient suppliers.

“We know the gut microbiome influences all-over health, and now, weight management,” revealed Shaheen Majeed, president, New Jersey-based Sabinsa Worldwide. He pointed to a recent double-blind, randomized, placebo-controlled clinical study investigated the impact of curcuminoids on the gut microbiome in humans for two months. “Curcuminoids were found to have a unique role and effect on the gut microbiome by increasing the population of several species, which attribute the “prebiotic-like” effects to suitable alterations of host physiology congenial to the growth of beneficial microbiota,” he explained.

Diet and nutrition research is very complex, Raban emphasized, and sometimes new study results are published that often contradict previous ones. This causes consumer (and even formulator/marketer) confusion. For example, she offered, one of the biggest areas of new research is the positive effect of fat on weight management. “Several new studies have concluded that lower carbohydrate diets that emphasize higher fat intake can lead to weight loss. Conversely, as with any

nutrition research, short-term results and long-term results are typically not equivalent. With long-term studies, the newest research still supports the old conclusions, such as increased vegetable consumption is usually the healthiest way to lose weight. However, with the rise of these short-term studies regarding the benefits of fat in the diet and the media buzz around ketogenic and paleo diets, consumers will seek out the studies that support their choices that might not be the most substantiated.”

A December 2018-published study utilizing Chromax chromium picolinate, New York-based Nutrition 21’s body composition-support ingredient, “addresses common issues associated with weight loss and shines light on the unfortunate fact that many popular weight-loss strategies, although effective, may only facilitate some weight loss derived from true fat with other portions coming from lean mass loss which is usually undesirable and can have negative health implications,” explained Chief Science Officer James Komorowski.

He elaborated that lean body mass (LBM) is often lost through typical very low-calorie diets (hypocaloric, between 1,000 and 1,200 daily), so addressing and emphasizing LBM preservation or augmentation is critical. “There are a few dietary supplements that appear to help preserve LBM during weight loss or to reduce the loss of LBM as compared to diet alone,” he observed. One such dietary supplement that appears to have this “LBM sparing” effect is chromium picolinate. Chromax has been shown to effectively assist in true fat loss, while enabling these consumers to still maintain lean body mass.”

There are several mechanisms of weight loss to address with your formula that consumers find appealing, and that science shows can help goal achievement.

According to Hill, carbohydrate timing/manipulation is a growing area of interest and researchers are starting to discover the influence of this macronutrient on energy metabolism and weight management. Consumers, particularly athletes, are also beginning to understand the role of carbohydrates on body composition and performance. By manipulating the time and amount ingested, individuals may be able to achieve weight loss goals more effectively.

“Moreover” she said, “research on ingredients that can influence satiety, fat metabolism and hormone production will have a major impact on consumers, due to their ability to affect weight loss.

Another aspect of weight management that is often forgotten about is the need for managing blood sugar, according to Bhattacharya. Fat has always been blamed for the rising obesity epidemic, but more recently, research has shown that sugar in all its forms is the culprit: the average American consumes 82 grams of added sugar every day, which is three times the amount recommended by the American Heart Association—and approximately 74 percent of packaged foods still contain hidden sugars, he pointed out.

The Calorie Equation: Enough?

No doubt, to lose weight, one needs to expend more calories than one takes in. It is simple math, said Dr. Chien, 3,500 calories equal one pound. If the individual consumes 500 fewer calories per day, one pound will be lost in one week. “If you stop eating you are guaranteed to lose weight,” she commented. “However, in general, the objective of losing weight should be to stay healthy. To me, building muscle mass and glucose management are the key to long-term, healthy and successful weight loss.”

She added that muscle increases the basal body metabolic rate. For every pound of muscle gained through exercise, 50 extra calories are used per day.

Diet and exercise “are the first steps to tipping the scale in favor of negative energy balance,” agreed Bhattacharya. In addition to caloric restriction, there has been some discussion about foods (notably medium-chain triglycerides or MCT) that use up more calories to digest than they contain, increasing diet-induced thermogenesis. Muscle is more metabolically active than fat, so increasing fat-free mass spurs desirable metabolism during weight management and keeps the body in negative energy balance. “The final component of energy expenditure is resting energy expenditure (REE) and this area is a focus of much research,” he related. “Increasing or maintaining REE during caloric restriction can effectively support long-term weight management.”

Hill likewise confirmed that burning more calories than are consumed to lose weight works—however, she noted, “this notion is not as simplistic as it may seem. Exercise does not have such a profound effect on weight loss, considering the number of calories consumed tend to override the amount burnt in an average exercise session—in other words, you can’t simply outrun a bad diet. By establishing total daily energy expenditure and not eating more than what is required, individuals will likely see a decrease in weight.”

Majeed has a unique view: “Once fat is formed and deposited in the body, it is very difficult to reverse because of the complex nature of fat, so prevention is better,” he said.

He also emphasized that weight loss cannot occur by a single mechanism, but rather is more achievable by a holistic approach combining several synergistic mechanisms including a combination of ingredients to maintain healthy body composition. “For the vast majority of individuals, overweight and obesity are the results of excess calorie consumption and/or inadequate physical activity,” he added.

How Ingredients Enhance Weight Loss

Lonza’s ingredients that support weight management, body composition and overall fitness include Carnipure L-Carnitine and Meratrim. According to Erickson, L-carnitine plays a crucial role in producing energy from fatty acids through beta-oxidation. A meta-analysis published in 2016 showed that L-carnitine supplementation led to a substantial decrease in both body weight and body mass index (BMI) compared to a placebo. L-carnitine is produced in the body from two precursor amino acids—lysine and methionine—but this process only contributes 25 percent to the total carnitine in the body. The rest comes from the diet. “Supplementation can therefore help to increase dietary intake,” she commented.

Meratrim is Lonza’s clinically studied, patented blend of two plant extracts (*Sphaeranthus indicus* and *Garcinia mangostana*), that Erickson said has both cardiovascular and weight-loss benefits when combined with a healthy diet and exercise. “Meratrim can support healthy blood lipid levels, as well as helping to reduce hip and waist size,” she said. “These benefits are supported by three randomized, double-blind placebo-controlled trials, including a substantial 16-week study, and have been studied in healthy, overweight individuals involving diet and exercise.”

Gencor’s ActivAMP is composed of saponins extracted from the vine of *Gynostemma pentaphyllum*, and has been shown to support healthy weight management by activating adenosine monophosphate-activated protein kinase (AMPK), according to Hill. AMPK regulates energy metabolism by increasing β -oxidation and glucose oxidation as well as down-regulating acetyl coA carboxylase, which Hill explained is “a metabolic configuration identical to that induced by physical

exercise; and, like exercise, ultimately reduces cholesterol, blood glucose levels and abdominal adipose tissue.”

Gencor’s Slimaluma, a standardized extract of *Caralluma fimbriata*, benefits weight management via appetite-suppressing properties, leading to weight loss. The anorexigenic effects are attributed to pregnane glycosides, compounds that also have been shown to inhibit pre-adipocyte cell division, “a novel mechanism which holds great potential for the prevention of long-term weight gain,” she said.

Testofen, also from Gencor, is a standardized extract of fenugreek with a 50 percent content of furastanol saponins. According to Hill, human clinical studies have found Testofen to boost testosterone levels naturally, contributing to enhanced body composition by decreasing body fat and increasing lean muscle mass. “Testofen supports weight as its anabolic potential allows individuals to build more muscle mass, which helps boost metabolism and develop a foundation for weight loss,” she explained.

Komorowski reported that a recent review published in *Nutrients* in December 2018, compared changes in body composition that occur from using Nutrition 21’s Chromax chromium picolinate versus other popular diet programs. While all diet programs led to weight loss, the results demonstrated that Chromax supplementation resulted in the greatest percentage of fat loss and the smallest percentage of lean body mass loss from total weight loss. The same review also compared Chromax against other popular weight loss supplements, and again, subjects supplementing with Chromax lost more fat and less lean muscle mass out of their total weight loss. “This shows that when supplementing with Chromax, you can lose the fat and not the muscle,” he said.

Chromium, Komorowski explained, is a trace element essential for carbohydrate, lipid, and protein metabolism, and is an insulin cofactor. It works by activating glucose transporter 4 trafficking and enhancing insulin-stimulated glucose transport, helping insulin to function more effectively to transport glucose into cells. This means that chromium helps insulin function more effectively to transport glucose into cells.

Sabinsa also has several clinically studied ingredients that help promote weight loss.

ForsLean, extracted from the roots of *Coleus forskohlii*, is available in three grades, standardized for 10, 20 and 40 percent forskolin. “Approved by the Korean FDA (Food and Drug Administration) as a weight-management ingredient, several clinical studies with ForsLean carried out globally suggest its significant role in promoting lean body mass,” noted Majeed.

Extracts from *Garcinia cambogia* fruits from Sabinsa are Citrin, Citrin-K and GarCitrin contain the fruit’s active constituent (-) Hydroxy citric acid (HCA), which has been studied for its role in assisting weight loss. Patented GarCitrin combines garcinol with HCA, while GRAS (generally recognized as safe)-affirmed Citrin-K is fully water soluble and, said Majeed, inspired the concept of weight loss coffee and tea with garcinia to the market, especially in the E.U.

Sabinsa’s LeanGard blends ForsLean, GarCitrin and bioavailability enhancer BioPerine that work synergistically to support satiety and lean body mass with a beneficial impact on healthy body weight. According to Majeed, LeanGard has been clinically evaluated for its safe and effective role in ideal weight management.

He explained the differences between ForsLean and GarCitrin. ForsLean increases the cAMP levels and therefore the lipase activity to break down fat. The HCA in GarCitrin helps reduce the appetite and also increases fat metabolism. “GarCitrin and ForsLean complement each other in weight management, so can work better in combination than as single ingredients,” he said. “Together they

'break, block and burn' (break the fat, burn the fat, and block new fat formation). These three functions are of great importance in healthy body weight management and lean body mass."

In studies, healthy overweight/obese individuals who consumed OmniActives' OmniLean (Salacia chinensis) had improved changes in gut hormones which reduced blood sugar spikes and appetite, Bhattacharya reported. OmniActives' Capsimax also has recent clinical evidence that it can support healthy weight management. In a recent study, 2 mg of capsaicinoids from 100 mg Capsimax was found to significantly increase REE by greater than 6 percent in healthy men and women. "This increase can help keep the energy balance tipped in favor of healthy weight management," he commented.

Chien described Outlast, exclusively available through HORN, an IMCD company, as a blend of "popular sports nutrition ingredient creatine and the isomultulose Palatinose, manufactured by BENEIO. While creatine has been widely used in increasing muscle mass and strength adaption during training, it's getting an 'update' through Outlast, where creatine absorption is increased by 50 percent when Palatinose is used as a carrier."

BI provides a wide variety of plant-based ingredients that manufacturers can use to for weight loss/management formulas, according to Raban. "The two biggest categories are plant-based fibers and proteins, which are both known by consumers to help with satiety. Most Americans consume less fiber than recommended so having several options of consumer-friendly fibers is extremely helpful for formulators," she said.

The great news is that there are plenty more ingredients, each with its own portfolio of human studies, demonstrating weight loss and favorable lean body mass through a variety of clear mechanisms of action. And if your product is what consumers attribute to losing weight, you will gain tremendous word-of-mouth support. No matter the diet du jour, your effective weight loss/management product is a lose-win-win proposition! NIE

For More Information:

BI, www.botanicals.com
Gencor Pacific, www.gencorpacific.com
HORN, www.ethorn.com
Lonza Consumer Health & Nutrition, www.lonza.com
Nutrition 21, www.nutrition21.com
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