

WEIGHT MANAGEMENT INGREDIENTS

Obesity & a Weight Management Boom

The failure rate of consumer diets is the major factor in the increasing sales of weight management and control products globally.

by Maartje Geraedts

Since the late 1970s, an increasing trend in obesity in both adults and children has been observed globally, with no signs of it slowing down. Measures of overweight and obesity are factors associated with a number of chronic diseases, including diabetes, cardiovascular disease and cancer. Issues related to being overweight or obese represent a growing problem around the globe. The increased interest in active personal health management from consumers will help to drive market growth in the area of weight management ingredients, as companies, governments and the consumers themselves look to solve the problems of the obesity crisis.

Lifestyle changes promoting the increased pursuit of sedentary occupations, and the inability to balance dietary management and exercise patterns, have both contributed to cause the increase in obesity. "Research has shown that weight loss can benefit health; even with a 5%

loss in weight, there are metabolic benefits," says Anke Sentko, Vice President Regulatory Affairs and Nutrition Communication at Beneo. "However, research has also shown that biological changes that occur when a person becomes obese make weight loss and, more importantly, maintaining a lower body weight, very difficult."

Weight Management Challenges

"People want a quick fix to lose weight," says Erik Aller, Director at Co-Eur, a knowledge platform in the field of eating disorders, overweight and obesity. "This is a lot easier than making lifestyle changes." Health experts agree that making lifestyle changes, including following a healthy eating pattern, reducing caloric intake, and engaging in physical activity, is the basis for achieving long-term weight loss. But because making diet and lifestyle changes can be difficult, many people turn to dietary supplements promoted for weight

management, in the hope that these products will help them to more easily achieve their weight loss goals.

The failure rate of consumer diets is the major factor in the increasing sales of weight management and control products globally. The weight management ingredients industry is responding to this desire by offering one or a variety of ingredients to control body weight.

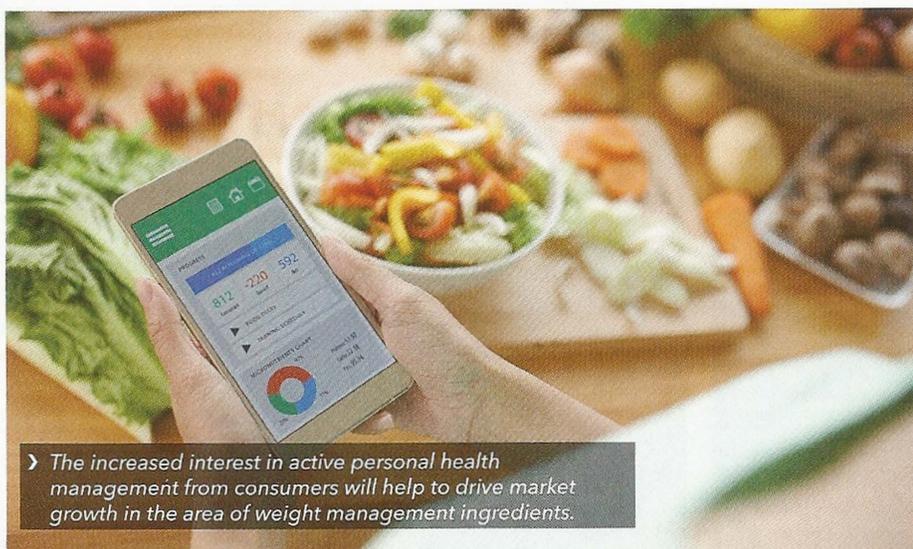
"Offering obese people dietary means that stop weight gain, rather than having to 'continually tell people who have become overweight or obese that they need to lose weight' will have more effect on weight management," says Sentko. "The critical component in weight management is reducing weight gain." A sustainable approach to supporting healthy eating is the only way to avoid the so called "yo-yo effect" and other dieting frustrations.

Weight Management Ingredients

Dietary supplements promoted for weight loss encompass a wide variety of products and come in a variety of forms, including capsules, tablets, liquids, powders and bars. The average product contains ten different ingredients, but some contain as many as 96 different ingredients. Common ingredients include botanicals (herbs and other plant components), dietary fiber and minerals. "Naturally derived ingredients such as chicory fibers, as well as functional carbohydrates from sugar beet, offer various scientifically proven benefits that help to keep energy (i.e. calorie) intake and output in balance," adds Sentko.

Manufacturers market these products with various claims, including that they reduce macronutrient absorption, appetite, body fat and weight, and increase metabolism and thermogenesis. "Ingredients support consumers in maintaining a healthy weight because they reduce calories, help consumers eat less, or support balanced blood sugar levels," says Sentko. "They can be easily incorporated into everyday food products, which helps consumers follow a healthier diet in the long run, as they don't need to make any major changes to their normal eating habits."

"The amount of scientific information available on these ingredients varies considerably," says Aller. In some cases, purported benefits are based on limited theoretical data or animal and laboratory studies, rather than human clinical trials. In other cases, studies supporting a given ingredient's use are small, of short duration and/or of poor quality.



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This limits the strength of the findings. In almost all cases, additional research is needed to fully understand the safety and/or efficacy of a particular ingredient. Aller continues: "Complicating the interpretation of many study results is the fact that most weight loss supplements contain multiple ingredients, making it difficult to isolate the effects of each ingredient and predict the effects of the combination."

Different Mechanisms

There are several types of ingredient products with weight management properties on the market which are derived from a variety of origins. A significant component of the market is made up of naturally sourced products. "We know that consumers are looking for more natural solutions that help them to reduce calorie intake," says Abigail Storms, Vice President Sweetener Platform Innovation at Tate & Lyle. Natural foods are regarded more positively in the consumer market, or products that can be perceived as natural.

The weight management ingredients market is divided into various application sectors: satiety ingredients/appetite suppressants, fat burners (thermogenic ingredients) and other weight management ingredients. These include carbohydrate blockers or substitutes, fat blockers or fat replacers and metabolism regulators. "It is often ignored that blood sugar management plays a key role in weight management and as a major driver of metabolism, insulin, is influenced by the blood sugar level," says Sentko.

Lowering levels of insulin are beneficial for weight management as they allow for fat burning. "Chicory fibers and functional carbohydrates lower the blood glucose responses to food and drink products," adds Sentko. "One recent example is a study conducted by the research team of Professor Raylene Reimer

from the University of Calgary in Canada. Their results show that chicory fiber improves appetite regulation, decreases food intake in overweight and obese children and improves inflammation, helping children to get healthier and to eat less."

Sugar Reduction

Governments and authorities in many countries worldwide are looking at ways to reduce the consumer consumption of sugar to fight overweight and obesity. "Each step to better nutrition is a good step," says Sentko. "However, believing that cutting down sugar is the solution for avoiding obesity is too simple."

"For consumers around the world, reducing their consumption of sugars and their total calorie intake are top priorities, when it comes to weight management," says Storms. "There are a number of reasons for food & beverage manufacturers to consider developing more no/low calorie and no/low sugar products. These products can help manufacturers position their brands as healthier alternatives, avoid sugar taxes and achieve specific advertising needs and labeling claims."

Smart sugar reduction considers the physiology of the ingredient, how it behaves in the body and affects the metabolism. "While high potency sweeteners can provide sweetness, they don't always have the same functional benefits of sugars," says Storms. "Manufacturers must find the right combination of ingredients for their specific application, in order to replicate the sensory attributes that sugars deliver. For example, certain fibers can help preserve the sensory experience of a full sugar product, by maintaining bulk and mouthfeel."

Gut Microbiota

There is a growing interest in the human microbiome and how it influences the human

body. Exactly how bacteria influence body weight isn't yet known, but many researchers believe that gut microbiota plays a role in processing food and helps to determine how many calories and nutrients the body absorbs. Certain intestinal microbes may also alter the body's sensitivity to insulin, so that it burns fat that it would otherwise have stored.

Several research groups have provided new insights into the mechanism link, revealing that the beneficial effects of fibers on food intake resulting from their specific prebiotic fermentation properties and the cross-communication with the gut-brain axis. "Short chain fatty acids formed during fermentation positively influence satiety regulation in the brain, reducing appetite and subsequent food intake," says Sentko.

While some of the gut microbiota is determined by genetics, lifestyle and dietary

habits can have a dramatic impact on the mix of beneficial and harmful microbes. "A recent study demonstrated that prebiotic supplementation in kids may be an effective early intervention for preventing obesity related morbidity and mortality in adulthood," says Sentko. "This is an incredibly important finding, considering that overweight in childhood tends to persist into adulthood."

Manufacturing Challenges

Issues regarding the placement of herbal medicines on the market, together with the length of time it takes for novel foods to be approved for human consumption, are major problems for food manufacturers, restricting the innovation and causing hesitancy in the market. Additionally, raising awareness among consumers represents a primary challenge for manufacturers globally, though this

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can be facilitated with successful product legislation.

"There is a lot of information out there, and our customers do not know what to believe any more," says Aller. "The host of claims on the packaging confuses customers and they are becoming distrustful of food manufacturers."

Sentko agrees: "There are a lot of over-promising products on the market. A sustainable approach to manage weight that also provides the benefits that consumers and health professionals are hoping for is only possible if the metabolic effect of the ingredients, and the final product, is considered as well."

Another main challenge is the taste of weight management products. "Creating products that are both functional and palatable is another challenge," explains Storms. "Manufacturers face two key chal-

lenges when replacing sugars and reducing calories: compensating for sweetness and replacing body and mouthfeel. Taste is a key area of concern, together with replacing body and mouthfeel."

A Robust Future?

Weight management product manufacturers are increasingly adding the ingredients to their product ranges, with meal replacement products being a very popular method of consuming weight management ingredients. "Healthy weight management is key to losing weight. In the case of obesity, as well as avoiding weight gain when you wish to 'stay as you are,' but also to support healthy growth and development in children," adds Sentko.

Aller says: "Weight management is about not just the food that you eat, but

also about the amount of food that is eaten, and more importantly, why certain people eat so much of it." While the food industry is on the right path of reducing calories in their products, that does not prevent the consumer from overeating on that product.

"It is important that consumers are aware that their dietary intake has to be in balance with how many calories they eat and how many they burn," Aller concludes.

Sentko agrees: "Food manufacturers should think beyond label cosmetics. Smart solutions for weight management take into account physiology, as well as the metabolic effects." Giving consumers the chance to make conscious product choices that will help them manage their weight in a sustainable way, in the long run, is essential to tackling obesity. ▼

Table: Selected Commercial Ingredients for Weight Management

Product/Supplier	Effective Ingredients	Proposed Mechanism of Action	Evidence of Efficacy
Satiereal (PLT Health Solutions)	Saffron Extract	Improving levels of the neurotransmitter serotonin.	Has been shown to reduce uncontrolled between-meal snacking without side effects.
PhospoLean (Chemi Nutra)	Blend of N-oleyl-phosphatidylethanolamine (NOPE) and epigallocatechin-3-gallate (EGCG) from green tea extract.	Signaling the brain to switch off the sensations of hunger.	No demonstrated weight loss benefits, but shows a trend towards greater diet compliance with the ingredient.
LOWAT (InterHealth)	Blend of <i>dolichos biflorus</i> and piper betle extracts.	Boost satiety by increasing a hormone that helps break down fat and decrease a hunger inducing hormone.	No demonstrated weight loss benefits.
LeanGuard (Sabinsa)	Blend of <i>Coleus forskohlii</i> , Hydroxycitric acid, <i>Garcinia cambogia</i> and BioPerine (black pepper extract).	Stimulates lipolysis and suppresses lipogenesis and appetite.	No demonstrated weight loss benefits with the ingredients alone. No scientific data available on the combination of these products.
CitriMax (InterHealth)	<i>Garcinia cambogia</i> extract, calcium and hydroxycitric acid.	Suppressing appetite, reducing caloric intake and enhancing mood.	Some scientific data that supports reduced appetite, reduced weight, increased fat burning and lowered blood lipids.
Meratrim (InterHealth)	<i>Sphaeranthus indicus</i> and <i>Garcinia mangostana</i> .	Increasing the breakdown of fat, while controlling the accumulation of new fat.	Two scientific publications supporting increased weight loss.
Isomalt (Beneo)	Sugar alcohol from sugar beet root.	Lowering blood glucose levels, replaces sugar, thereby cutting calories.	Effective in lowering blood glucose.
Palatinose (Beneo)	A derivative of a natural source of sucrose.	Lowering blood glucose and increases energy.	Effective in lowering blood glucose.
Chicory fibers (Beneo)	Inulin	Improve appetite regulation and decrease food intake.	Effective in lowering blood glucose and appetite control.
TASTEVA (Tate & Lyle)	Derived from stevia	Calorie reduction by replacing sugar.	No data available on weight management.
PromOat (Tate & Lyle)	Beta glucan	Calorie reduction by replacing fat and calories in products.	No data available on weight management.
PROMITOR (Tate & Lyle)	Soluble corn fiber	Calorie reduction by replacing sugar.	No data available on weight management.
Alli (GSK)	Orlistat	Blocks the intestines from absorbing about 25% of the fat that you eat.	Effective in weight management.