

Providing Protein in On-the-Go Breakfast Foods

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Breakfast is the newest frontier for packing a protein punch and food manufacturers are looking for inventive ways to change how Americans kick-off their day. The unhurried breakfast of decades past has given way to an average of just 12 minutes a day for consuming breakfast, according to the research firm NPD Group Inc.

Societal shifts have also driven the time-starved nature of the morning meal. More mothers of young children are in the workforce, putting additional pressure on families to prepare breakfast, drop off the children at day care or school and get to work. So what works for busy moms also sells at the grocery store, which includes foods that are fast to prepare, highly portable and delivering nutritional qualities that will prepare the family to face the day ahead.

Nutrition research supports changing trends

Several trends underscore the importance of continued innovation in protein-rich foods, including increased consumer interest in higher protein foods for weight management, muscle health or optimal growth and development. A diet rich in high-quality protein is gaining scientific support as a successful strategy to promote healthy weight in adults and young people, alike. However, many people consume nearly half of their daily calories in the evening hours, when choices made are calorically dense foods with little nutritional value, as opposed to optimal distribution across the day¹. Amount and timing are important factors for balancing

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protein consumption across the entire day and breakfast emerges as an opportunity.

On-the-go breakfast sandwiches or meals that provide protein are gaining popularity as people seek a breakfast that is satisfying to consume, accepted by family members and contributes to daily protein nutrient intake. These products must be aligned with overall nutrition or weight maintenance goals and not contribute to overconsumption of total calories or calories from fat. Lean meats or soy-based meat alternatives served on low refined carbohydrate or whole grain pita or tortilla that allows transport and consumption on the go are a go-to product for busy families. These products are preferred to traditional breakfast fare not only because of convenience but due to the satiating properties that allow kids and adults to remain focused throughout the morning.

A recent study investigated the effects of consuming a normal cereal and milk breakfast providing 13g protein or an animal protein based breakfast delivering 35g of protein; both breakfast products were matched to provide 350 kcals. The 20 girls in study consumed one of the test breakfasts or no breakfast at all, each for a week. Testing done on the final day of each week revealed that when the girls ate a higher protein breakfast, they were more satiated compared with normal protein breakfast².

Flavorful Protein-Rich Foods

Soy proteins are available in several formats. Soy protein concentrates have at least 65 percent protein on a moisture-free basis while soy protein isolates are 90% protein by dry weight. In addition to offering substantial nutritional benefits, soy protein provides useful properties for food manufacturers, such as emulsification, gelation and whipability.

Soy protein ingredients have a Protein Digestibility Corrected Amino Acid Score (PDCAAS) of 1.0, making them a complete, high quality protein. What makes soy unique is that it is the only widely available plant protein that is also considered a high quality protein. Most plant proteins are lacking in one or more of the essential amino acids, making them lower in protein quality than soy protein.

Years of clinical research also confirm the heart health benefits of soy, making it the only protein source with an FDA-approved health claim recognizing those benefits. The body of research suggests that soy protein lowers cholesterol by two mechanisms: first, by an intrinsic property of the protein itself that lowers plasma cholesterol through an, as of yet, unidentified pathway and second, by an extrinsic property achieved when soy protein displaces suboptimal foods, such as those higher in saturated fat and cholesterol, rather than added on top of the daily diet. In other words, replacing foods rather than adding.



Cereal: Still the Breakfast of Champions?

As consumers experiment with more protein-rich foods, old habits seem to die hard. The fact is most Americans still eat breakfast at home and follow morning routines more rigidly than during the rest of the day. Even though it's important that people consume protein in the morning, many breakfast foods like muffins and waffles are high in carbohydrates and fail to deliver the satiating protein that many consumers seek.

While the popularity of cereal has diminished over the last several months, manufacturers are quick to respond to changes in the market by packing protein in cereal foods. Soy protein is used extensively as an ingredient in hot cereal mixes and breakfast bars to boost protein value and quantity. New formulations of soy proteins are leading this charge. DuPont was the first to introduce soy protein nuggets (or crisps) into nutrition bars, helping to build a category that is now more than a billion dollars in sales and growing. A new protein multigrain nugget, SUPRO® Nugget 173, part of the DuPont™ Danisco® ingredient range is used in a variety of products including bars, snacks, baked goods, cereal, and more. It's the first soy nugget in the marketplace that combines protein and grains in a single nugget.

Another innovation is a new high protein soy nugget for nutritional bars, snacks, bakery products, cereals and more, SUPRO® Nugget 570, also part of the DuPont™ Danisco® ingredient range. This is the first and only nugget in the marketplace that is 90 percent protein on a dry weight basis, making it the highest containing soy protein nugget currently on the market. Cereal is poised to become a protein-packed breakfast food that can be manufactured to be high in soy protein with distinct advantages over other breakfast protein sources (like bacon and eggs) that

are high in both fat and cholesterol.

Baking Better Bread

There are still those consumers who cling to the enjoyment they receive in starting the day with their favorite coffee and pastry. Another of the most promising uses of soy is in bakery products. For example, the addition of soy protein to bread products can raise protein content, provide essential amino acids, and increase bread's nutritional value.

Researchers have incorporated soy protein isolates (SPIs) in 20 percent and 12 percent substitution levels, respectively, during bread manufacture. The sensory profile of the 20 percent SPI bread is acceptable and comparable to the control bread. No significant differences in sensory properties of the SF and control breads were detected by the trained panel for many sensory attributes³. The study provides information on the level of SPI that can be included in bread in an amount that appeals to consumers. This level also allows for a Food and Drug Administration (FDA) heart health health claim to be made. Bread freshness is maintained because the soy protein retains free moisture during the baking cycle, and soy protein products improve bread crust color and toasting.

Breakfast Is Important

Recent evidence has isolated several key factors that play a critical role in the development of obesity. One in particular is the common, unhealthy dietary habit of breakfast skipping, which is strongly associated with an increased prevalence of weight gain and obesity. Population research has revealed that people who skip breakfast often have poor overall diet quality and make poor food choices such as snacking on nutrient-poor, high-fat or high-sugar foods and beverages. In addition to breakfast, it is important to continue to seek out low-fat, lean-protein-containing foods throughout the day.

Consumers appreciate the effectiveness of higher protein meals includes the improvement in appetite control and satiety. The added nutrition value offered by inclusion of innovative soy protein ingredients, combined with consumer product appeal to taste and texture, can help ensure success in a very competitive market.

[1] Paddon-Jones & Rasmussen. *Curr Opin Clin Nutr Metab Care* 2009, 12: 86-90; *Layman Nutrition & Metabolism* 2009 6:12.

2 Leidy, et al. "Beneficial effects of a higher-protein breakfast on the appetitive, hormonal, and neural signals controlling energy intake regulation in overweight/obese, "breakfast-skipping," late-adolescent girls." *Am J Clin Nutr*.3 Ivanovski, B., et al., "Development of soy-based bread with acceptable sensory properties". *J Food Sci*. 2012 Jan;77(1):S71-6. doi: 10.1111/j.1750-3841.2011.02510.x.

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