



Crafting keto-friendly cookies for carb-conscious consumers

Interest in keto foods now extends beyond the diet's hardcore followers – and this more-mainstream consumer has an appetite for bakery treats that qualify as keto-friendly. But is it really possible to marry indulgence, protein and reduced sugar in the cookie aisle? We put the question to two of Cargill's authorities on baked goods: Courtney LeDrew, a marketing expert in the bakery and snack space, and Aaron Reed, a bakery application specialist. Here's what they said.

Q. Let's start by understanding the opportunity here. What constitutes a keto cookie, and who's interested in buying them?

LEDREW: The keto diet calls for low carbohydrate intake, high fat and plenty of protein. Within the cookie space, you'll see products with less than 4g of net carbs* and 5 or more grams of protein – a far cry from your standard cookie recipe.

Typically, net carbs are calculated by subtracting fiber and sugar alcohols from total carbs.

As for who is snapping up these bakery treats, data from the International Food Information Council (IFIC) suggests there's a sizable market for high-protein/low-carb eating. In their 2023 survey, they found that 18% of consumers said they followed a high-protein diet, making it America's most-common eating pattern. Keto products, notoriously high in protein and low in carbs, offer plenty of appeal to this substantial consumer segment.

Q. How much traction does the keto trend really have in the bakery aisle?

LEDREW: There's a bigger appetite in the bakery aisle for two of keto's trademark deliverables – reduced sugar and high protein – than you might expect. In 2021, nearly a quarter of bakery launches made a sweetener claim, and 20% carried a protein claim. That represents a sizeable portion of the category's innovation – and as successive new products offer improvements in taste, texture and overall quality, the keto-friendly, reduced-sugar/high-protein bakery space will continue to grow.

Q. Is it even possible to create a low-carb, high-protein cookie that tastes good?

REED: It seems counter-intuitive, but with the tools available today, you really can craft a high-protein, low-carb cookie that still comes across as tasty and indulgent. For sweeteners, there are zero-calorie, zero-carb options like stevia and erythritol, which we typically recommend using together in a sweetener blend. Both are heat-tolerant, so they work well in baked applications.

Erythritol is only 70% as sweet as sugar, but it pairs well with high-intensity sweeteners like stevia and rounds out the overall sweetness profile. Maltitol is another polyol sometimes used in keto-friendly bakery applications. With a sugar equivalency value (SEV) of 85 to 90, it's a little sweeter than erythritol.

Q. It sounds like sweetness is relatively easy to replace, but what happens to texture?

REED: Texture and mouthfeel are a little trickier. While stevia can help replace sugar's sweet taste, it's used at very low rates, so it won't make up for the loss of bulk or functionality associated with sugar. For those properties, we often turn to erythritol, a zero-calorie bulk sweetener made from a fermentation process, along with fibers and other keto-friendly texturizers.

Erythritol is not a stand-alone ingredient in bakery products, because it misses some of sugar's key functional properties. While it does contribute sweetness, bulk, and helps lower water activity, erythritol doesn't give the spread we expect in cookies; nor will it contribute to browning. That's where the fibers and other texturizers come in.

While not a sweetener, some fibers act similarly to sugar in functionality, assisting with spread and browning. And, because they resist digestion, fibers can add bulk to a product with half the calories of fully digestible carbohydrates.

Q. So using these tools, just how much sugar reduction is possible in a cookie recipe?

REED: It's pretty easy to replace 30% of the total sugar and still have a cookie that delivers on taste, appearance, mouthfeel and texture. We've gone as high as 50% in sugar reduction, and still created a very indulgent cookie.

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However, it's also important to consider calorie reduction together with sugar reduction. Often in the bakery category, we see a calorie increase with sugar reduction, due to the need to add other ingredients to compensate for the loss of sugar.

Q. What about delivering on the high-protein portion of the keto cookie equation? Do you have any tips for bakers?

REED: Whenever you bump up protein levels in bakery, batters become more dense and stiff. That makes managing water absorption one of the bigger challenges. You may also run into challenges with flavor, eating quality and product appearance. Many times, the key to solving all these problems is opting for plant-protein blends – though not just any plant protein will do.

Our PURIS® pea protein, for example, has a very clean flavor and a high protein content – two characteristics that make it a good choice for cookie formulas targeting keto or protein claims. Other considerations with plant proteins include things like order of ingredient addition

and hydration time. Fortunately, we've done extensive work with protein blends and can help guide bakers through these formulation twists and turns.

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Color is another consideration. Plant proteins can alter the color of a finished product. Pea protein, for example, can have a slightly yellow hue – and depending on how much is added to a formula and the type of cookie, may impact the final color. In a brownie formula, you won't notice the difference, but in other, lighter-colored baked goods, the color difference may be more noticeable.

Q. What's the future look like for the keto bakery space?

LEDREW: At the consumer level, interest in keto products remains strong. Much like gluten-free products capture sales well beyond consumers with gluten sensitivities, keto products are finding an audience beyond those following the strict diet regime. As keto becomes a shortcut to low sugar, low carb and high protein, it seems poised to maintain its steady growth – especially if brands commit to also bringing indulgence to this quickly evolving category.

Unwrap the secret to creating deliciously indulgent, keto-friendly treats with less sugar and more protein.

* FDA does not define net carbs. Typically, net carbs are calculated as total carbs minus fiber and sugar alcohols.
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