

Food in the Digital World – Tik Tok, AI, Influencers

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Learning Objectives

After reading this article, participants will be able to:

1. Describe how social media and influencer marketing impact consumer food choices.
2. Name three ways artificial intelligence may be used in a consumer's food and nutrition journey (directly or indirectly).
3. Describe how Registered Dietitian Nutritionists can ethically use technology to stay relevant and positively influence food choices.



By: Chrissy Carroll, MPH, RD

The rise of artificial intelligence and social media has ushered in new challenges for Registered Dietitian Nutritionists (RDNs). Consumers are receiving more food and nutrition messaging than ever before, but much of it comes from questionable sources. People may turn to AI or influencers for information, rather than consulting with an expert.

Even as a professional, you have these technologies at your fingertips, but it can be overwhelming to evaluate their impact and how to use them competently.

With a little attention and creativity, though, you can better understand how social media and AI affect consumers – and use them yourself to promote evidence-based nutrition information and create engaging culinary content.

Social Media, Influencers, and Food Choices

It's incredible to look at the impact of social media on today's population, given how relatively new these platforms are in the context of history. Two of today's most popular platforms – Instagram and TikTok – didn't even launch until 2010 and 2016, respectively^{1,2}. Yet these platforms can influence food and nutrition beliefs and trends.

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Short form videos on Instagram and TikTok can disseminate information rapidly and widely given a combination of their large number of users and clever content algorithms. In the United States, 47 percent of all adults use Instagram³, and that number jumps to 75 percent when you look only at 18–24-year-olds.⁴ In addition, 33 percent of all US adults are using TikTok.³

On these platforms, users can access a seemingly endless scroll of recipes, cooking tips, and nutrition information. In a study⁵ that examined nutrition influencer posts in Australia, recipes actually ranked as the theme with the most importance (a win for culinary Registered Dietitian Nutritionists)!

This same study⁵ found that other popular themes included specific topics of health (gut health, energy, skin health, etc.), promotion of dietary supplements, the healthfulness of specific foods and dietary patterns, and “body goals” or transformations. Given that only 13 percent of the influencers examined were nutritionists or Registered Dietitians⁵, though, one could speculate that a considerable amount of misinformation was shared.

In fact, several studies have shown that much of social media’s nutrition and fitness content is not credible information or is not provided by a reputable source.^{5, 6, 7}

However, the average consumer doesn’t seem bothered by this. A 2022 study⁸ in Foods surveyed 898 adults that used Instagram and found that approximately 44 percent followed nutrition influencers on Instagram. Yet 78 percent said they never looked at the credentials for any of the nutrition

influencer content they followed, and 74 percent said they’ve never checked the nutrition claims (like the accuracy of the nutrition facts or health-related statements) on recipes shared by influencers.

On the plus side, the democratization of accurate nutrition, food, and fitness information could empower people to make better choices for their health, experience new cultural foods and cuisines, learn new cooking skills, and engage in exercise.

However, the spread of misinformation can be rampant, and that comes with risks. And these platforms are not without other downsides too.

Marketing of less nutritious choices on social media may impact consumption, particularly in youth and adolescents. One randomized control trial⁹ found that children exposed to influencer marketing for nutrient-poor snacks were more likely to increase intake of those snacks, compared to a child shown influencer marketing for non-food products. This may impact adults as well, considering that more than 90 percent of selected nutrition influencers’ posts in one study⁸ promoted a particular brand, product, or supplement.

Cultural appropriation in the food space is also a concern on social media. There have been several instances of popular food creators and bloggers omitting proper attribution and cultural context for recipes.¹⁰ As writer Dan Dao notes, “Recipes can indeed bring us all together while paying homage to their origins. And they can be packaged for new audiences—with pretty pictures, even—without losing their historic or cultural meanings.”¹¹

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Lastly, the curated nature of social media can also create unrealistic expectations in many areas of life including food, nutrition, and body image. Some research¹² has linked increased Instagram usage to a higher prevalence of orthorexia symptoms.

Similarly, a study that looked at popular TikTok food and nutrition videos found three key themes: “the glorification of weight loss in many posts, the positioning of food to achieve health and thinness, and the lack of expert voices providing nutrition information.”¹³ In fact, only three percent of videos were found to be “weight-inclusive”.¹³

The misinformation, emphasis on thinness, cultural appropriation, and risk of poor nutrition habits (on both ends of the spectrum, as far as nutrient-poor foods or disordered eating patterns) are all concerning for users. However, as Registered Dietitian Nutritionists, this presents an opportunity to create accurate, helpful, culturally respectful, and inclusive content.

AI, Consumers, and Food Choices

Ever since ChatGPT entered the scene in November 2022¹⁴, artificial intelligence transitioned from a Silicon Valley hot topic to everyday dinner conversation. It is often described as the largest technological development since the Internet.¹⁵

The Oxford English Dictionary defines artificial intelligence as “The capacity of computers or other machines to exhibit or simulate intelligent behavior.”¹⁶ In other words, it is a computer activity that processes information and produces outcomes similar to those of human intelligence.

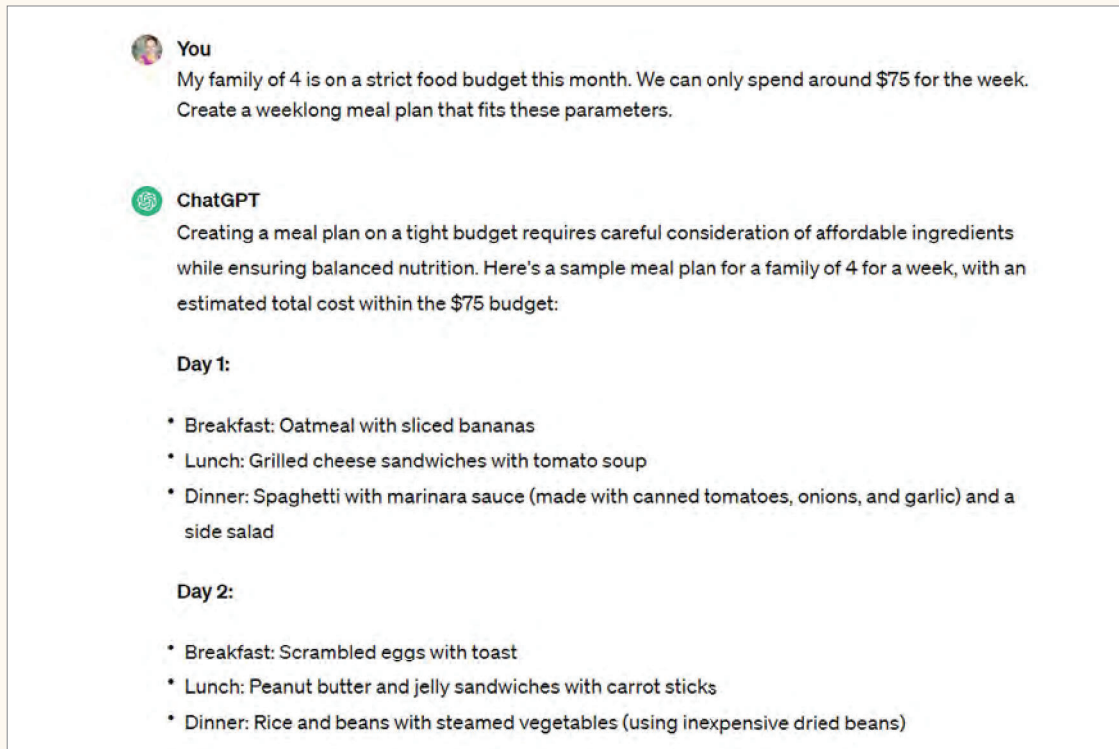
There are three main ways that AI is currently directly or indirectly impacting consumer food and nutrition choices:

1. Consumer Use of ChatGPT

Some consumers are going directly to the most popular generative AI tool – ChatGPT – to help them directly with food and nutrition. ChatGPT receives an impressive 1.6 billion site visits every month¹⁷ and has approximately 180 million users¹⁸. Here are a few ways consumers may be using it:

- **Recipes** – Users can ask ChatGPT for recipes based on dietary preferences, ingredients, or nutritional attributes. Because this is a language learning model, though, the ideas are not always ideal in terms of taste or flavor. Look no further than this recent suggestion (when ChatGPT was asked to come up with a list of high protein egg recipes) for proof: “Eggcellent Berry Parfait! Layer hard boiled eggs, Greek yogurt, and mixed berries in a glass. Drizzle with honey and almonds for a colorful, protein packed parfait.”
- **Meal Planning** – ChatGPT can provide a meal plan and an accompanying grocery shopping list based on a consumer’s dietary goals, restrictions, and the ingredients they have on hand.
- **Food Substitutions** – If someone has an allergy or intolerance, they can copy a recipe into ChatGPT and ask for the best substitutions for an ingredient (though this is not always accurate).
- **Nutrition and Fitness Guidance** – Some users are even asking ChatGPT to provide information like recommended calories and macronutrients, suggestions to help lose weight, tips about starting a healthy eating journey, workout plans, etc.

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The screenshot shows a chat interface with two messages. The first message is from 'You' and asks for a meal plan for a family of 4 on a \$75 budget. The second message is from 'ChatGPT' and provides a sample meal plan for two days, listing breakfast, lunch, and dinner options with ingredients.

You
My family of 4 is on a strict food budget this month. We can only spend around \$75 for the week. Create a weeklong meal plan that fits these parameters.

ChatGPT
Creating a meal plan on a tight budget requires careful consideration of affordable ingredients while ensuring balanced nutrition. Here's a sample meal plan for a family of 4 for a week, with an estimated total cost within the \$75 budget:

Day 1:

- Breakfast: Oatmeal with sliced bananas
- Lunch: Grilled cheese sandwiches with tomato soup
- Dinner: Spaghetti with marinara sauce (made with canned tomatoes, onions, and garlic) and a side salad

Day 2:

- Breakfast: Scrambled eggs with toast
- Lunch: Peanut butter and jelly sandwiches with carrot sticks
- Dinner: Rice and beans with steamed vegetables (using inexpensive dried beans)

A sample meal plan prompt and AI answer from ChatGPT

2. Search Content Algorithms

Imagine that you are looking for a recipe for healthy banana pancakes. You head on over to Google, type in that keyword phrase, and almost instantaneously you're presented with a list of recipes in the search results. But how does Google determine which sites receive those top spots?

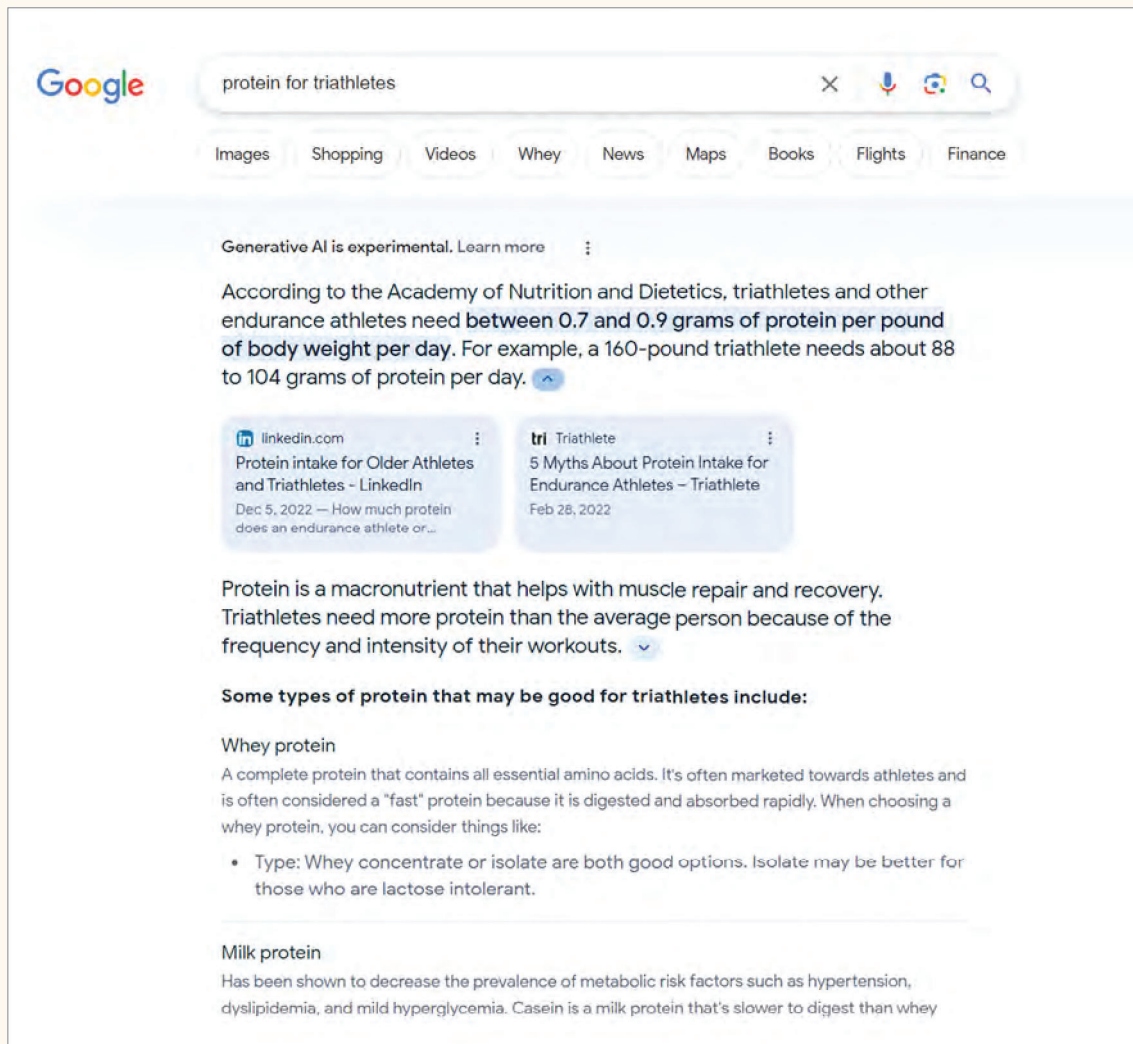
Google's results are delivered using algorithms that are refined by both manual raters and artificial intelligence. AI is used to improve the relevancy of search results, as well as in processes like image search or song recognition.¹⁹

Soon, though, there will be an even bigger role of AI in Google, as they prepare to more broadly launch their "Search Generative Experience (SGE)". SGE will provide an AI answer directly at the top of a search query before a list of any websites, which may drastically increase the interaction that many people have with AI.

This new search experience will be more like ChatGPT, where the user sees an answer immediately without the need to visit a website. Will they start solely using AI to provide recipes and meal plans? Will they start following the nutrition guidelines the AI answer gives them, or will they proceed to an expert's website? Time will tell, though many experts estimate that at least a proportion of users will feel confident in using the AI answers.²⁰

Similarly, social media platforms like Instagram and TikTok use machine learning to deliver personalized content recommendations.²¹ Have you ever noticed that the more you interact with a certain niche (for example, recipes), the more you see that type of content? On Instagram, for example, you'll see suggested videos in your normal feed, and you'll see content tailored to your interests in the Reels feed.

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3. AI in Food and Nutrition Apps and Services

Food and nutrition apps that utilize AI are exploding in popularity. Users may turn towards these apps for help with meal planning or disease management. A few examples currently on the market include:

- **Healthifyme** – This app features an AI health coach, picture-based food logging with AI food recognition, and pro add-ons like human coaching, continuous glucose monitoring, and smart scales.²²
- **SnapCalorie** – With one photo of your food, SnapCalorie uses AI to instantly provide an estimate of calories, macronutrients, and micronutrients.²³
- **RxFood** – One of the more advanced AI nutrition apps, RxFood offers the ability for photo food tracking and the analysis of diet quality based on different diagnoses.²⁴ The company is running clinical trials with use of their app, one of which found that the app helped youth and teens with diabetes improve carbohydrate counting accuracy and lower HbA1c levels.²⁵

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- **Heali** – Another clinically studied app, this utilizes AI trained by Registered Dietitians.²⁶ The algorithm analyzes food choices and recipes against an individual’s medical conditions and food preferences to recommend smart choices. A study²⁷ comparing the Heali app to general nutrition education materials found that the app improved quality of life and reduced bowel habit dissatisfaction in patients with IBS.

Consumers may also be exposed to AI in different foodservice experiences, from restaurants to the grocery store. Companies can use AI to make personalized menu suggestions in a chain’s mobile app.²⁸ Brands are starting to use AI-powered robots in certain aspects of food preparation or delivery.²⁸ Marketing teams at food companies may use AI to gain insights on new products, through programs like Gastrograph, an AI tool trained on the world’s largest sensory database (a large set of data on sensory attributes like flavor, texture, aroma, mouthfeel, etc).²⁹ All of these can impact the final product on a person’s plate.

Challenges for Registered Dietitian Nutritionists

You don’t have to be a digital savant to see that social media and artificial intelligence are rapidly changing the way consumers interact with food and nutrition. With this instant access to information comes several challenges.

Misinformation: As you have probably already experienced (both personally and professionally!), users are faced with a massive amount of food and nutri-

tion misinformation (more frequently on social media, but also sometimes via AI). This can undermine an RDN’s evidence-based practice. Therefore, RDNs can play an important role in helping consumers identify credible sources online.

As a professional, it’s also key for you to avoid falling prey to misinformation. When it comes to AI content, remember that it is not a fact-checker, but rather a language learning model. This means inaccuracies and “hallucinations” (when a language learning model presents false information as fact) can occur. For dietitians who plan to use AI content in their practice, it’s imperative to fact check and edit AI generated-content carefully.

Lack of Perceived Value: With the emergence of AI apps and websites, clients and brands may not see the need for an RDN in a particular role. For example, why should Susie pay \$150 for a session with an RDN, when she could pay \$10 for an AI nutrition app? It will be important for RDNs to communicate their value and the solutions they can provide for a particular problem.

Staying Up to Date: You’re in a world where information spreads rapidly and trends can evolve within hours on Instagram and TikTok. If you’re not a fan of social media, you may fall behind in these ever-changing food trends, which could be detrimental to some types of work. You may want to spend some time tracking social media trends if you’re working with younger audiences, participating in product development, or working with major media companies.

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Legal and Ethical Issues: There are legal and ethical challenges to consider with both social media and AI. If you're sharing sponsored content and product endorsements on social media, for example, you'll need to stay up to date on FTC disclosure guidelines³⁰ as well as the Code of Ethics for the Nutrition and Dietetics Profession.³¹

Similarly, if you're using certain AI tools, you'll need to navigate concerns over HIPAA, client comfort, and commercial terms of use. Be sure to read the terms of use and how data is stored for each tool. For example, let's say you start using an AI tool to create recipe images on your website. Some image generation tools allow for commercial use without attribution, while others require disclosing that the image was AI-generated. Each tool varies.

Bias: "As a nutrition professional, it's also important to be aware of potential bias in both social media and artificial intelligence. Social media displays content from those you follow and content that they think you're interested in. This can create an echo chamber of people who think similarly to you.³² Artificial intelligence can be trained on data that has inherent bias³³, thus creating bias in its outputs.

In either case, be sure to consider other possible angles and evaluate if any particular piece of content appears to be biased.

Opportunities for Registered Dietitian Nutritionists

Social media provides a powerful way to showcase your expertise and build an audience for free – your only cost is time. It's often easiest to choose

one social media platform to dive into thoroughly before expanding to others. When creating content, think about the 3 E's – education, entertainment, and emotion.³⁴ Content that checks all three of these boxes is likely to do well.

Social Media Ideas: If you're not sure what to post on social media, head on over to the Reels tab on Instagram or the For You page on TikTok. What types of content are trending? What do you see doing well in another niche that you could apply to your own niche? As a fun fact for culinary Registered Dietitian Nutritionists, one study found the most popular recipes on nutrition-focused Instagram accounts were "healthier" versions of desserts or sweet snacks.⁵

You can also use AI to help with ideation. For example, prompting ChatGPT to give you 20 social media video ideas for a particular niche or use AI to help with ideas based on trending audio, asking ChatGPT to "Give 10 video ideas that a Registered Dietitian Nutritionist could make with a background audio that says (insert trending audio sound)."

Content Creation: Putting off writing email newsletters? Head on over to ChatGPT to create a rough draft that you can edit. Need a social media caption or an introduction to a blog post? AI can help with that! You can also scroll through social media to see what topics are trending to get ideas for blog posts or email newsletters. These tools can help with writer's block and speed up the content creation process.

Interestingly, it's also possible to use AI for image content creation (though future use of this feature may change with pending litigation).³⁵ Perhaps you created an amazing recipe, but forgot to snap a photo and you want to share it on social media. In that case you can utilize sites like Gemini (Google's current AI tool), Midjourney, Canva, or the paid version of ChatGPT, and prompt it to create the image. Keep in mind image AI is much harder to prompt than written content; it requires a lot of practice with prompting.

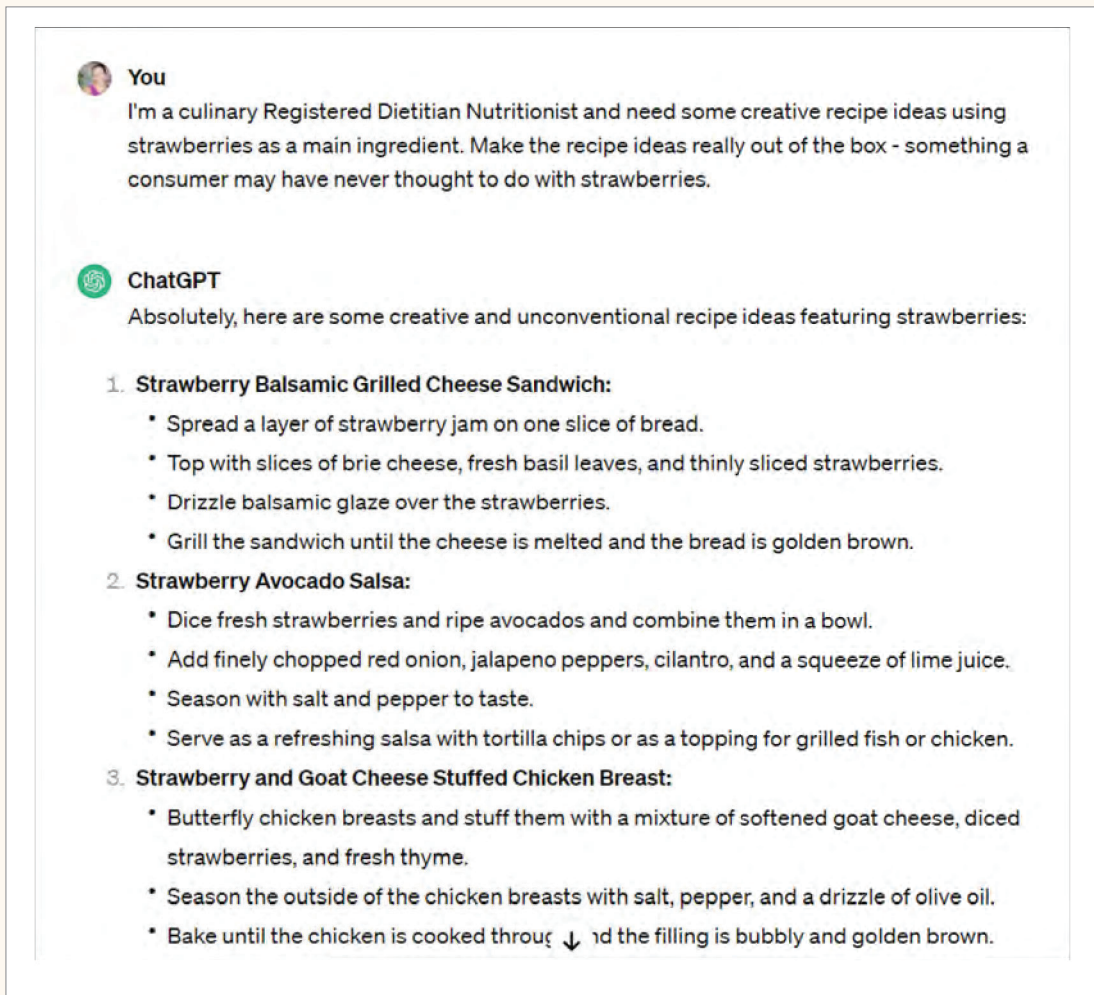
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Recipe Development: Remember when cottage cheese was the “it” food of 2023?³⁶ There was an explosion of search queries and interest in recipes that called for using it. Social media can inspire ideas for recipe development in this regard.

Similarly, you can prompt AI with particular food attributes and get inspiration for new recipes. AI has no cognitive bias, so it may come up with creative combinations that may not have otherwise

crossed your mind due to preconceived notions of flavor and pairings. Sometimes these can be epic fails, but they can also be a spark of genius that can be developed into a delectable dish.

When prompting AI for recipe ideas, get specific, such as “Give me 10 recipe ideas that use both potatoes and spinach. Make them creative ideas that someone may not have tried before. They should all be savory dishes.”



You
I'm a culinary Registered Dietitian Nutritionist and need some creative recipe ideas using strawberries as a main ingredient. Make the recipe ideas really out of the box - something a consumer may have never thought to do with strawberries.

ChatGPT
Absolutely, here are some creative and unconventional recipe ideas featuring strawberries:

- 1. Strawberry Balsamic Grilled Cheese Sandwich:**
 - Spread a layer of strawberry jam on one slice of bread.
 - Top with slices of brie cheese, fresh basil leaves, and thinly sliced strawberries.
 - Drizzle balsamic glaze over the strawberries.
 - Grill the sandwich until the cheese is melted and the bread is golden brown.
- 2. Strawberry Avocado Salsa:**
 - Dice fresh strawberries and ripe avocados and combine them in a bowl.
 - Add finely chopped red onion, jalapeno peppers, cilantro, and a squeeze of lime juice.
 - Season with salt and pepper to taste.
 - Serve as a refreshing salsa with tortilla chips or as a topping for grilled fish or chicken.
- 3. Strawberry and Goat Cheese Stuffed Chicken Breast:**
 - Butterfly chicken breasts and stuff them with a mixture of softened goat cheese, diced strawberries, and fresh thyme.
 - Season the outside of the chicken breasts with salt, pepper, and a drizzle of olive oil.
 - Bake until the chicken is cooked through and the filling is bubbly and golden brown.

A sample meal plan prompt and AI answer from ChatGPT



Workshop and Presentation Ideas: If you do in-person events, use AI to help come up with different angles for workshops or presentations. For example, when asking ChatGPT to give ideas for workshops a culinary Registered Dietitian Nutritionist could host in the community, it came up with answers like:

- **Gardens and Grilling:** Farm-to-Table Cooking (in partnership with a local farmer's market)
- **Vines and Veggies:** Wine Country Cooking (in partnership with a local vineyard)
- **Books and Bites:** Literary-Inspired Cooking (showcasing meal ideas from cookbooks at the library)
- **Trails and Tacos:** Outdoor Adventure Cooking (in partnership with a nature reserve or camping site)
- **Beats and Brunch:** Music-Inspired Cooking (in partnership with a local music festival or jazz brunch)

Client Productivity: If you work with clients directly, the AI apps entering the market could be helpful.

For example, photo-based food logs could save time for both your client and you as a practitioner, provided they feature an accurate breakdown of nutrients.

Similarly, using AI to help create meal plans for clients can save a massive amount of time and mental energy. These still require editing and refining, but AI can accelerate the process.

Collaborations and Partnerships: Building a presence on social media allows you to connect with other influencers, chefs, food bloggers, local businesses, and more. By developing relationships and collaborating, you may be able to expand reach, increase visibility, cross-promote services, and develop new partnerships, driving mutual growth and success.

The Bottom Line

While social media and AI can provide a wealth of information and entertainment, RDNs offer something that can't be replicated by a computer: presence and professionalism.

At the end of the day, people like to work with people. If you are counseling clients or conducting in-person culinary work, this can't be replaced by an influencer on TikTok or an app-based AI chatbot. Your presence (locally or virtually) is the differentiator.

If you aren't working directly with clients, these factors still come into play. For example, if you're creating recipes for a brand, your experience, credentials, and expertise are key in developing that delicious final product. While ChatGPT may be able to write a recipe for the brand, it can't execute it, taste it, and make modifications.

Despite their challenges, social media and AI can still be valuable tools to you as an RDN. By integrating them into your own businesses, you can increase productivity, expand your online presence with evidence-based content, and engage with your audience, ultimately driving business growth and success.

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Helpful Resources

- **Popular AI Tools:** ChatGPT, Claude, Gemini, Canva, Midjourney
- **Interesting Books:**
 - Futureproof:** 9 Rules for Humans in the Age of Automation by Kevin Roose
 - Hello World:** Being Human in the Age of Algorithms by Hannah Fry
- **FTC Disclosure:**
 - [Guides Concerning the Use of Endorsement and Testimonials in Advertising](#)
 - [FTC’s Endorsement Guides: What People Are Asking](#)

After reading this article you will link to the quiz in the [Eatright store](#).

This article has been approved for 1 hour CPEU. (Expires 4/16/2027)

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