

# Discovering Fermented Foods

CULINARY CONNECTION



The history, nutritional benefits, and joy of fermented foods

My kids have lived with a registered dietitian nutritionist all their lives, yet I was not the one to introduce them to a few interesting staples in our fridge. It was their seventh-grade science teacher who conducted taste tests of fermented foods. After learning about the process of fermentation, the young teacher brought out a spread of pickled and fermented items. Pickled okra, kimchi, and kefir are often on our grocery list now. These foods are an exciting food-science experiment, but do they taste good? Do they provide any nutritional benefits? If so, is it realistic to incorporate them into large-scale menus and operations?

## HISTORY

Fermented foods have been consumed for thousands of years by people in different parts of the world. Dairy fermentation started as early as 10,000 BC with cow and goat milk. This was most likely done naturally from microflora in the animals' milk and not initiated by humans. The first yogurts were likely made with milk hung over camels' backs when temperatures reached more than 105 degrees Fahrenheit in the desert.

Most of us are familiar with the name Louis Pasteur, who was the first scientist to understand the science behind fermentation in the mid-1800s. He discovered that the process of fermentation required the properties necessary to make a food ferment. He originally defined fermentation as *respiration*



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*without air.* His main focus was to increase the holding time and storage properties of food.

In 1910, a Russian bacteriologist named Elie Metchnikoff discovered the health benefit of adding bacteria to foods. He recognized that Bulgarians who consumed fermented milks had a longer lifespan (87 years, which is longer than the average American lifespan today). In 1935, a different strain of bacteria named *Lactobacillus* was discovered. *Lactobacillus*' claim to fame is its ability to survive the environment of the human gut and its active nature.

the fermentation processes. This controlled fermentation process can produce strong flavors, which is an acquired taste for some. Some words used to describe fermented foods include funky, salty, potent, exciting, unique, and delicious. We should not call fermented foods fresh, yet they are not rotten either. We can identify some fermented foods or probiotics by looking for "Contains Live and Active Cultures" on the label. It can be fun to explore the options in your own kitchen, and bring them into your operation for a new product line or an addition to typical meals.

colorful appetizer tray or use pickled zucchini and carrot ribbons as garnishes.

You can do a food demonstration with a sourdough starter<sup>1</sup> or make homemade sauerkraut<sup>2</sup> in a food club in your facility. Serving a Bahn Mi sandwich for lunch in your hospital cafeteria would be a fun surprise for guests. A Bahn Mi sandwich melds flavors of savory meat, pickled vegetables, and cilantro. Kimchi is fermented cabbage that can add a kick to a sandwich as well. Yogurt<sup>3</sup> is a familiar food for many people and can be made at home or in a commercial kitchen

Fermentation is an airless, or anaerobic, process. Happy and desirable bacteria called probiotics thrive in an oxygen-free environment and digest carbohydrates (sugars and starches), releasing carbon dioxide, alcohols, and acids. The undesirable bacteria that we know cause rotting and decay of food cannot survive in this anaerobic environment. Equipment used to ferment foods can be as simple as a good knife and cutting board, along with wide-mouth Mason jars. Ingredients can include the vegetable or product you are fermenting, salt, whey, or a starter culture and water. There are many blogs, books, and websites dedicated to instructions for



### TRY THIS AT HOME AND WORK

A simple place to start is with the most commonly-eaten fermented food: pickles! In fact, according to Mt. Olive Pickle Company, Americans eat about 20 billion pickles every year. You can serve pickled okra, grape tomatoes, and cucumbers for a delicious,

to reduce costs. Fermented beverages include kefir and kombucha, which can be added to a coffee shop cooler for a grab-n-go option.

Introducing fermented foods in your operation can add a punch of excitement to break up the monotony of a menu cycle. For many clients and

*Continued on page 12*

**FERMENTED FOODS:** The chemical breakdown of a substance by bacteria, yeasts, or other microorganisms, typically involving effervescence and the giving off of heat.

—Oxford Dictionary

customers, this is enough and they are not concerned about the nutritional benefits of what they eat. However, for a select group of people, they want to know if this new food will also have functional or nutritional qualities.

### NUTRITIONAL BENEFITS

The health benefits of consuming fermented foods have been greatly studied in the past 45 years. In fact, some scholarly articles cite the importance of including microbes and fermented foods in national food guidelines (Chilton, Marco). A primary benefit includes improved digestion, specifically reduction of Irritable Bowel Syndrome (IBS) symptoms. IBS affects 10-15 percent of Americans and is known to reduce the quality of life for those who suffer from it. The commercial industry promotes probiotics, meaning friendly bacteria. Research is also emerging on the gut and brain connection, linking consumption of fermented foods to improved mental health. Consuming certain strains of probiotic bacteria may increase our brain's production of serotonin, a calming "feel good hormone." (People with depression have lower levels of serotonin.) Probiotics have the ability to improve microbial balance, and have a potential role in the treatment and prevention of anxiety and depression (Clapp).

Whether you are searching out exciting additions to your menu, or you are looking for novel and functional foods for your plate, these fermented foods might be exactly what you are seeking. Your clients' taste buds and mental and physical health may benefit from your ingenuity and adventurous additions. **E**

## TEXT NOTES

State Extension offices are excellent resources for food safety tips and recipes. Check out these materials to support key points from the text:

1. To learn more about sourdough starter kits, refer to this publication from Arkansas Extension Office: <https://www.uaex.edu/counties/miller/Sourdough%20Bread%20More%20Than%20Just%20for%20bread.pdf>
2. Sauerkraut is a crowd favorite. For more information, refer to this publication from Purdue Extension Office: <https://extension.purdue.edu/extmedia/HHS/HHS-817-W.pdf>
3. You can make yogurt at home or in your facility. See this example from Oregon State Extension Office: <https://extension.oregonstate.edu/sites/default/files/documents/8836/fs173emakingyogurt.pdf>



## REFERENCES

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- *The ISAPP Quick Guide to Probiotics for Health Professionals: History, Efficacy, and Safety.* International Scientific Association for Probiotics and Prebiotics (ISAPP), 5 Mar. 2021, [isappscience.org/for-clinicians/resources/probiotics/](https://isappscience.org/for-clinicians/resources/probiotics/)
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## CULINARY TREND

Explore fermented foods to add excitement and interest to your menu.

## CE Questions | CULINARY CONNECTION



This Level II article assumes that the reader has a foundation of basic concepts of the topic. The desired outcome is to enhance knowledge and facilitate application of knowledge to practice.

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Reading *Discovering Fermented Foods* and successfully completing these questions online has been approved for 1 hour of continuing education for CDM, CFPPs. CE credit is available ONLINE ONLY. To earn 1 CE hour, access the online CE quiz in the ANFP Marketplace. Visit [www.ANFPonline.org/market](http://www.ANFPonline.org/market) and select "CE Articles." If you don't see your article title on the first page, then search the title "*Discovering Fermented Foods*." Once on the article title page, purchase the article and complete the CE quiz.

- Which food group was the first fermented food most likely in?
  - Protein
  - Dairy
  - Fruit
- What may be included on the label of a probiotic-containing food?
  - "Do not consume if pregnant"
  - "Shelf life 10 years"
  - "Contains live and active cultures"
- Undesirable bacteria that decays food cannot survive in an anaerobic environment.
  - True
  - False
- Nutritional benefits of eating fermented foods can include:
  - Improved digestion
  - Improved mental health
  - Both A and B
- Kimchi is:
  - Fermented cabbage
  - A mushroom
  - A yogurt-based beverage
- Desirable bacteria thrives in an airless environment and digests:
  - Fat
  - Protein
  - Carbohydrates
- One way to introduce fermented foods into your menu cycle is:
  - Use pickled vegetable ribbons as garnishes
  - Serve a Bahn Mi sandwich for lunch
  - Either A or B would be a way to introduce fermented foods

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