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Fermenting

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- Get started with 100+ delicious recipes for fermenting at home
- Make everything in your home kitchen from sauerkraut and kimchi to yogurt and bread

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**by Marni Wasserman, CN
and Amy Jeanroy**

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Fermenting For Dummies®

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Introduction

Fermenting your own food may seem like a daunting and unattainable process to take on at home. We have to admit, we were there one day too. But after you wrap your head around it, understand fermenting's history and methods, and know why fermented foods are so beneficial to your health, you may just reconsider. And because you're reading this book now, you're likely there already.

Coauthor Marni: As someone whose philosophy is rooted in natural nutrition and plant-based eating, each step of my journey with food has been a true evolution. I've taken on each layer with true determination. When I first made the choice to mostly eat plant-based food, it only became natural to take on all the things that came with eating a more wholesome, natural way. These include sprouting, juicing, blending, and — the most intimidating of the bunch — fermenting.

I resisted fermenting for years, thinking it was too difficult, but when I started with my first batch of sauerkraut, I had reached new levels. The concept of it was a true novelty. It was so simple and so rewarding to preserve your own food. Of course, experimenting with all the different plant-based foods was my true mission, so it was only natural to start taking some of my existing recipes and altering them to become more nutritionally active and alive.

Coauthor Amy: I can't remember a time when food wasn't an activity in my family. Sauerkraut, corned venison, pickled eggs — these were the foods of my people. It wasn't until I became a teenager that I realized no one else knew what in the world I was eating! From this upbringing, I developed a taste for fermented foods.

There's something intriguing about taking a single food and completely changing the taste and texture in a simple way. The smells and tingle of good fermented nourishment always remind me of being loved and cared for. I bring that same sense of self-reliance and health to this book. Each time I teach someone about the benefits of fermenting foods, I know that it opens up a whole new world of delicious taste that can come from their own backyard. There's no need to travel to exotic locations to experience delightfully tasty, nutritious food. You can create a wide variety of recipes with the simple ingredients you have on hand and a little time.

About This Book

This book breaks down the whole process of fermenting, from how to get started to what equipment and ingredients you need to discovering all the different foods that you can ferment. You'll be quite amazed at what takes place during the process of fermentation.

Here are a few of the topics that we explore:

- ✓ The basics of fermentation
- ✓ How to get started
- ✓ The benefits of fermented foods
- ✓ All the different types of foods that you can ferment: vegetables, fruits, grains, beans, meat, dairy, and beverages

On a technical note, you may notice that some web addresses in this book break across two lines of text. If you're reading this book in print and want to visit one of these websites, simply key in the web address exactly as it's written in the text, pretending as though the line break doesn't exist. If you're reading this as an e-book, you've got it easy — just click the web address to be taken directly to the website.

Foolish Assumptions

This book is for anyone interested in exploring the world of fermented foods. They're fascinating to learn about and healthy to boot. So if you're looking to take your health up a notch and take your foods to the next level, then this book is for you!

We expect that you have an interest in the topic and that you probably fall into one of these categories:

- ✓ You want to learn the basics of fermentation.
- ✓ You want to preserve your foods using natural methods that don't involve cans, vinegar, or other methods of food preservation.
- ✓ Your digestion is weak and you're looking for a natural solution through foods to heal your gut.

- ✔ You're interested in getting back to your roots and into the kitchen.
- ✔ You're looking to make your own homemade fermented beverages and foods so that you can avoid the not-so-healthy options in the supermarket.

Icons Used in This Book

This book uses *icons* — small graphics in the margins — to help you quickly recognize especially important information in the text. Here are the icons we use and what they mean.



This icon appears whenever an idea or item can save you time, money, or stress as you add more fermented foods to your diet. These include cooking and shopping tips and ideas for incorporating fermented foods into some of your existing meals.



Any time you see this icon, you know the information that follows is so important that it's worth reading more than once.



This icon flags information that highlights dangers to your health or well-being.



When the discussion veers off into the realm of too technical or downright nerdy, you'll see this icon.

Beyond the Book

In addition to the material in the print or e-book you're reading right now, this product also comes with some access-anywhere goodies on the web. Even though we try to give you as much info as possible in this book, you'll likely want to find out more. Check out the free Cheat Sheet at www.dummies.com/cheatsheet/fermenting.

In addition, you can read interesting companion articles that supplement the book's content at www.dummies.com/extras/fermenting. We've even included an extra top-ten list, which *For Dummies* readers seem to love.

Where to Go from Here

For Dummies books are organized in such a way that you can surf through any of the chapters and find useful information without having to start at Chapter 1. Naturally, we encourage you to read the whole book, but this structure makes it very easy to start with the topics that interest you the most.

If you're looking to gain an understanding of fermentation and its roots and what you need to get started, take a look at Chapters 1, 2, and 4. If you're trying to understand why fermented foods are so good for you, check out Chapter 3. If you're vegetarian, vegan, or generally plant-based in your diet, you may want to refer to Part III, which covers all things plant-based.

Chapters 11 through 13 cover animal-based fermenting. So if you're looking to ferment dairy, meat, or fish, these chapters are for you. The book also has several chapters on fermented beverages, from healing beverages in Chapter 14 to alcoholic beverages in Chapters 15, 16, and 17.

No matter where you go in *Fermenting For Dummies*, you're sure to discover a lot and gain a healthy attitude toward fermented foods!

Part I

Getting Started with Fermenting



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In this part . . .

- ✔ Get familiar with the basics of fermentation.
- ✔ Discover traditional to modern practices of fermentation.
- ✔ Find out the difference between pickling and fermentation.
- ✔ Figure out the items you want to ferment.
- ✔ Understand why fermented foods are so good for you and your gut.

Chapter 1

In the Beginning: Fermenting Roots

In This Chapter

- ▶ Exploring the history of fermented food
 - ▶ Achieving optimal health by integrating fermented foods into your diet
 - ▶ Gathering essential fermenting ingredients
 - ▶ Using brine to pickle foods
 - ▶ Making your first ferment: sauerkraut
-

Before the days of refrigerators, people had to do something to keep their foods from going bad. Fermentation is one of those incredible preservation methods still used today. You can preserve foods in so many different ways: You can freeze them, can them, dry them for storage, or ferment them. These days, few people know and love the art of fermentation, but it's an art that has existed for many years past and, when you discover it, a world of splendor opens up!

Fermented foods are returning to the modern kitchen. The art of fermentation precedes history and happens by capturing and controlling the growth of bacteria, molds, and yeasts, and falling in love with the presence of lactobacilli found on the surface of all things. You'll discover more about the importance of these healthy living microbes in fermentation as you read on.

Fermentation is a unique, natural, and fun way to preserve your food, discover new flavors and recipes, and go on a mind-bending adventure through various cultures and through an ancient history of food that has existed for centuries around the world. If you're lucky, fermentation can even act as a tool for self-discovery and a vehicle for self-exploration in health and healing.

Getting Familiar with Fermentation

Fermented foods are all around you. You may not realize it, but you're likely already a consumer of one or more fermented food products. Have you had any sourdough bread, soy sauce, tofu, yogurt, cheese, or a glass of cider or wine lately? Does your sandwich come with a salty pickle or some sauerkraut on the side? You can thank the process of fermentation for these items.



Fermentation turns sugars to alcohol or other acids using yeast and bacteria. The chemical change often involves increasing the acidic environment and develops in places without oxygen (*anaerobic* conditions). It's a low-cost, highly efficient way of preserving foods.

Fermented foods have existed for centuries as populations around the globe learned how to capture the slow decomposition process of organic materials and preserve them by adding salts, sugars, or yeasts. They controlled mold and promoted good bacteria with the intention of maximizing the shelf life of their foods, enhancing flavors, or gaining health benefits.

Getting to know the art of fermentation also gets you familiar with the beauty of bacteria and its desirable presence in your food products. The changes caused by fermentation can be both good and bad. When fermentation occurs naturally, the food can smell or taste "off" (think of sour milk), but when you control the fermentation process, you can actually have some incredible results! When you execute fermentation processes properly, something that could have turned rotten instead turns into a consumable product. That's right — bacteria, yeasts, and molds will soon become your new best friends.

When fermenting foods, the key to developing the perfect environment and flavor and gaining all the great health benefits is to be confident, experiment, and do your best to create the utmost environment for fermentation, with proportional ingredients to support its growth. Some recipes are more challenging than others or require longer fermentation time, but plenty of fun and simple recipes are out there for beginners.

Fermentation throughout History

Food can give you insight into cultural and culinary traditions from around the world. Every part of the world has had a fermented food to be proud of. From beverages and breads to vegetables and fruits to meats and milk, there is often a whole culture and ritual behind these fascinating fermentations. This section pulls back a historical veil and reveals some rhymes and reasons behind this unique food process.

Mesoamerica: Calling all chocolate lovers!

Fermentation is essential to making delicious and tasty chocolate. The history of chocolate began with the Mayan civilization. The cacao tree grows in the tropics and produces a long fruit pod that, when ripe, is yellowish in color and contains anywhere from 20 to 30 cacao beans, or seeds, surrounded by a delicious white, fruity pulp. The seeds are left inside the white pulp to ferment and begin changing the chemical compound and releasing the flavor of chocolate that you know and love into the beans. These seeds are what is harvested and processed to make chocolate. Some cultures used the fruit pulp alone to make a fermented, slightly alcoholic drink consumed by Aztec warriors and aristocrats. Although some chocolate is made using unfermented cacao beans, the most flavorful and least bitter chocolate is born from fermentation. Cacao beans were so valuable in Mayan civilization that they were even used as a form of barter and currency! (See Chapter 14 for a drink recipe that uses cacao.)

Africa: Turning toxins into edible tubers

The *cassava root* is consumed in many parts of the world but has a strong presence in Africa. It is very rich in starch, a great calorie filler, and a relatively cheap market item. This staple food is abundant locally and cooked in many different ways. Deep-fried, steamed, boiled, or fermented, cassava can be sweet or savory. It needs to be fermented or cooked because it contains an amount of cyanide that's unpalatable and toxic to human consumption. *Gari* is the name for the common fermented cereal made from cassava, which could be compared to North American oatmeal, only fermented. (See Chapter 10 for notes on how to prepare cassava.)

Asia: Thirst-quenching and candied culture

Kombucha is one of the strangest looking fermentations, as it is done using a *SCOBY* (symbiotic colony of bacteria and yeasts) and appears rubbery in nature when growing. When placed in the correct environment, the combination of a SCOBY with tea and sugar creates an ancient health drink, *kombucha*, a fermented tea that is said to have originated in Central Asia. When drunk in moderation, kombucha has a wide range of health benefits. In some cases, the SCOBY alone is even candied by adding lots of sugar. Today, kombucha is becoming widely recognized among health food shops and within new-age environments. (See the nearby sidebar, as well as Chapter 14, for more on kombucha.)

Eastern Europe and Russia: Bubbly fruit kvass

Kvass is the Eastern European version of Asian kombucha. It's a fermented beverage that's most commonly made from rye, though other yeasts and fruits can be used. It has a low alcohol percentage and has been a common drink in Eastern Europe, and especially Russia, for centuries. In many cases throughout their patriotic history, people have chosen kvass over Coca-Cola! (See Chapter 14 for a kvass recipe.)

Japan: The sensational soybean

The soybean has become a widely cultivated and commonly distributed fermented food product. Tofu, tempeh, miso, and soy sauce are among the most recognized fermented soy goods, which originated in East Asia. The soybean itself has been cultivated around the globe and is a major industrialized food that serves populations worldwide. Although many people have problems with soy allergies, in moderation the fermented soybean (covered in Chapter 9) can actually enhance digestibility, reduce gas and bloating, and add beneficial flora to a person's diet.

Alleviating digestive discomfort

The exciting thing about being a culinary nutritionist is that I (Marni) get to inspire people and help them improve their health. Every client presents a different challenge, and we work together to find unique solutions to suit that individual's body and lifestyle needs.

Many of my clients come to me with digestive issues, and one client in particular had been suffering from digestive discomfort for years. She had a list of common symptoms: bloating, gas, and irritability. What was happening to her

gut? I suggested she be daring and try something new. I suggested she try making her own kombucha or at least buy some to include in her diet every day.

The results were incredible! After sipping just a half cup every day with lunch for a week, her bloating subsided, her energy increased, and she felt significantly better. As you can see, just a small amount of fermented foods can have a profound effect on the body!

North Africa and Morocco: When life gives you lemons

Morocco tells a different story of the lemon. Lemons may be the last thing you thought of putting into your mouth whole, but with the magic of fermentation, you can eat them rind and all. When lemons are quartered, salted, and stuffed into jars left to ferment, they transform into a zesty treat. You can leave them in saltwater brine for years (see a recipe for preserved lemons in Chapter 6) and then use them in stews and sauces or to add a zesty kick to any recipe.

How Can Something Rotten Be Good for Me?

In her book *Nourishing Traditions*, Sally Fallon says that the proliferation of *lactobacilli* in fermented vegetables enhances their digestibility and increases vitamin levels. These beneficial organisms produce numerous helpful enzymes, as well as antibiotic and anti-carcinogenic substances. Their main byproduct, *lactic acid*, not only keeps vegetables and fruits in a state of perfect preservation but also promotes the growth of healthy flora throughout the intestine.

Fermented food helps turn those hard-to-digest substances into digestible ones and even comes chock-full of vitamins and minerals.

It may be deceiving that a food that has seemingly started to ferment can be good for you. Yes, the line can seem quite thin between rotting and fermenting, but as you get to know the art of fermentation, you'll quickly discover the difference. Food that is rotten has already become useless and inedible. It can smell bad, be moldy, and can certainly harm one's health. Fermented foods actually prevent rotting, can even be safer to eat than fresh food, and last much longer before they're considered truly spoiled. Fermenting foods can enhance the foods' flavors — you'll grow to love the new smells, strange fizzes, and interesting looks.

Fermented foods offer some amazing health benefits. They can

- ✓ Improve your digestibility
- ✓ Help you better absorb more vitamins and minerals

- ✓ Lower your risk of eating spoiled foods or getting food poisoning
- ✓ Reduce your risk of cancer and other diseases

For more information on how fermenting foods increases the nutrients in the food and the digestibility of your gut, see Chapter 3.

Fermenting Essentials

The fundamental things you need to ferment foods are often the same, but there are many variations of those ingredients that can change your results.



- ✓ **Fermenting containers:** Fermented foods must be made without the presence of oxygen or spoilage will occur. A good fermenting container is essential to your success. Use a sturdy container that's large enough to hold your fermented goods. Containers are best made from glass, like Mason jars, or nonreactive materials, such as a crockpot made from ceramic or a well-cleaned plastic bucket. The key to fermentation is creating an anaerobic, or oxygen-free, environment by sealing out any outside air.
Look for fermentation jars with an airlock seal that allows gas to escape but no air to get inside, though in some recipes a weighted lid will do the trick.
- ✓ **Lactobacilli:** These naturally occurring bacteria are essential to the fermentation process. These good bacteria have been proven to fight intestinal inflammation and help create a healthy gut. They also enhance the flavors and digestibility of fermented foods — they're the invisible workers that make your food ferment!
- ✓ **Salt:** Salt can kill any bacteria that may cause illness. It does this by creating a less inhabitable environment by removing water from the plant cells. Salt also helps enhance the flavors of food. It can reduce sweetness or bitterness in foods, a desirable thing for your recipes!
- ✓ **Spices and herbs:** You add herbs and spices to your fermented foods to create unique recipes. Think of adding ginger to your kombucha, cranberries to your sauerkraut, or caraway seeds to your pickled goods!
- ✓ **A starter or a culture:** Many fermented recipes ask for a starter or a culture. No, we're not looking for you to adopt a new way of life; this type of culture is one full of existing microbial life. A fermentation starter can come in the form of a dried powder, yeast, or a wet substance and is essentially used to boost the food's flavor and the digestion process.