

# Dehydrate2Store

## NEWSLETTER

Dehydrate2Store.com

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**Look Out for Next Month's Article on Making Your Own Yeast from Dehydrated Fruits! It's a Must-read!**



## Nutritional Yeast

A User-Submitted Article

*Special thanks to one of our fans for this great article and information!*

Nutritional yeast is an inactive yeast that is grown on cane and beet molasses. This yeast can be thought of as a nutritional gem. It is a great source of protein, vitamins and amino acids and yet, a great number of people are not at all familiar with it. Nutritional yeast is popular with vegetarians as it is one of the only non-animal sources of vitamin B12. Aside from the nutritional value nutritional yeast offers, it can also aid in lowering cholesterol. Nutritional yeast is rich in B-complex vitamins, which have been correlated with reductions in stress levels, prevention of pancreatic cancer, and regulation of metabolism. The great thing about nutritional yeast is it is not only good for you, but it tastes great as well. Nutritional yeast is a good substitute for cheese and salt

because it is naturally low in fat and sodium, making it a tool for weight loss. It is also a "complete protein," meaning it



contains all 9 essential amino acids. This makes nutritional yeast especially popular with vegans.

### Can I Substitute Active Dry Yeast for Compressed Yeast?

You may certainly substitute active dry yeast for compressed yeast in a recipe. The only difference is that you should dissolve the active dry yeast in the liquid ingredients before combining it with the flour. One

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Check out the new things coming to  
Dehydrate2Store

New Shop Items, New Resources, New Tips, New Videos, All This Summer!



# Dehydrating Rhubarb

## Rhubarb is Full of Nutrients?

### *How to dehydrate rhubarb and what to do with it*

I am amazed at how many people I have talked to that have never tried rhubarb and have no idea what to do with it. Come on, you have never had strawberry rhubarb pie or jam? As a child, I would walk through the fields with my grandfather looking for huge rhubarb stalks to take home and cook into pies, cookies, muffins, and jam.

### **Nutrition**

The stalk of rhubarb offers

vitamins A and C, potassium, and fiber, and is low in calories ( $\approx 20$  per cup). However, in order to enjoy this tart plant you will need to add a good amount of sugar, much like with cranberries. Although rhubarb is great to eat in moderation, too much will have super laxative properties! Most important: avoid the leafy part of the rhubarb because it is NOT EDIBLE and could be highly toxic. If you plant rhubarb around your garden it will deter many animals that would otherwise make your garden their meal.

### **Dehydrating**

Prior to dehydrating rhubarb you will need to wash it, cut it into  $\frac{1}{2}$  inch or slightly thinner slices, then cook until tender. Next, place on your trays and dry for 10-12 hours at 120-125 °F. For long-term storage, store in vacuum bags with oxygen absorbers and then double bag into Mylar bags. For short-term, mason jars with oxygen packs works great.

For strawberry rhubarb roll-ups, cook the rhubarb on the stove

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## Dehydrated Strawberry Rhubarb Pie Coming Soon

**A delicious Strawberry and Rhubarb Pie recipe using dehydrated foods will be in August's newsletter, and we will be filming a video for this recipe in August as well!**

**Get Those Taste buds Ready!**



Welcome to The Health Corner. All Information Found Here is Backed by Published Scientific Articles and Data! Feel Safe About What You Eat!

**Note:** In The Health Corner we will never recommend medications, though we may speak of the health benefits of various foods. These benefits are to be enjoyed in moderation, and are not meant to treat serious illnesses. If you feel you have a serious illness, please consult a physician!

# The Health Corner

-Steve of Dehydrate2Store, First Year Medical Student

## Proper Dehydration and Storage v. Bacteria

Depriving foods of water and air by dehydration and vacuum sealing creates uninhabitable conditions for many bacteria

Canning food is considered a “sterile process” by definition because the food is heated to extreme temperatures, which should in theory kill virtually all bacteria. However, there are still dangers involved in canning regarding microbial growth. Waterborne bacteria, especially, can be nuisances when canning. If canning is performed improperly or jar seals break, dangerous pathogenic waterborne bacteria such as *Clostridium botulinum* (the cause of botulism) can thrive. Studies involving dehydrated foods, however, display a significant decrease, and typically an altogether absence, of pathogenic bacteria! **How?** (1) Dehydration uses temperatures at which many bacteria cannot grow or survive, (2) most bacteria require water, and cannot grow below 10% water content (as you know, properly dehydrated foods should reduce the water content of foods to 5% or below), and (3) removing atmospheric oxygen during vacuum sealing decreases the ability for many microbes to grow.



most bacteria that are pathogenic to humans thrive at human body temperature (37 °C, 98.6 °F). Once the temperature begins to rise above 37 °C, many bacteria begin to die (hence the effectiveness of having a fever when you are sick!). Common harmful foodborne bacteria include: Various *Clostridium* (like *botulinum*), fecal coliforms, *Salmonella*, and pathogenic *Staphylococci* (“Staph” infection). Studies show that nearly all strains of these harmful bacteria die between 37 and 44 °C (98.6 and 111.2 °F).<sup>1, 2, 3</sup> Dehydration is typically performed at 49-52 °C (≈120-125 °F), except when dehydrating meat (which is ≈55-66 °C, or ≈130-150 °F). In the hundreds of samples reviewed by Haines *et al.* and others, *Cl. botulinum* was not found in dehydrated foods, and the growth of other pathogenic bacteria was virtually absent.<sup>3</sup>

### 2. Desiccation

If performed properly, dehydration should remove 95% of moisture. This creates an environment where most pathogenic bacteria and fungi cannot grow or reproduce, and

where many even die.<sup>3, 4</sup>

### 3. Air Removal

Some pathogenic bacteria are aerobic (thrive in the presence of oxygen), and some are obligate aerobes (will die without oxygen).<sup>1, 2</sup> As such, air removal inhibits the growth of, or kills, some pathogenic bacteria. Furthermore, a properly sealed vacuum bag will prevent new bacteria from landing on your food.

### Hygiene

Although studies show that many pathogenic bacteria cannot grow in dehydrated foods, and that most die during the dehydration process, there is always a chance for potentially harmful bacteria to make their way into your food, dehydrated or not. Thus, hygienic precautions should still be taken to ensure your family is thoroughly protected. Don’t worry, it’s easy! When dehydrating, begin by washing your hands. Then, wash foods

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#### Definitions to Know:

**Microbes:** Microscopic organisms like bacteria or fungi.

**Pathogenic:** able to cause disease (remember, not all bacteria are pathogenic!)



### 1. Temperature

As expected,



# The Health Corner



-Steve of Dehydrate2Store, First Year Medical Student

## Proper Dehydration and Storage v. Bacteria *Continued*

with soap and water prior to dehydrating. Finally, always wear rubber or latex gloves when handling dehydrated foods if you plan on storing them long-term. Not only can your hands introduce bacteria, but they can also contribute oils that could compromise the shelf life of your dehydrated foods.

### What About “Good” Bacteria?

The majority of cells in your body are “normal flora” bacteria.



These are natural bacteria that contribute to healthy digestion, vitamin production, and more.<sup>5</sup> Thus, your normal flora is very important. There are a large variety of normal flora bacteria, and although the dehydration process kills many pathogenic and non-pathogenic bacteria, there is luckily a selection of normal flora bacteria that will survive.<sup>3,4</sup> In addition, your normal flora is established in your first few years of life, and much of it comes through simple contact with environment (touching objects, breathing, drinking, etc.).<sup>5</sup> Thus, you should not be concerned that eating a diet consisting of dehydrated foods will “reduce your normal flora”. If you are concerned, try our “Yogurt” recipe and video

(Dehydrate2Store.com) for a probiotic boost, and (as you should be doing anyways) eat a well-balanced diet! In addition to dehydrated foods, consume grains, powdered foods, herbs, legumes, nuts, etc.

### Rehydration

Since you are reintroducing water during rehydration, you create an environment where new bacteria, or dormant bacteria, can grow (just like if you left wet food in the open). Studies show that if you rehydrate foods for 4 hours or less at room temperature the risk of harmful levels of bacterial growth is essentially absent.<sup>3</sup> Rehydrating while heating for longer periods (such as when making soups), however, is also perfectly fine since high temperatures hinder bacterial growth. Similarly, rehydrating in the refrigerator (“Rehydration by Refrigeration”), which may take up to 24 hours, is also fine since lower temperatures slow bacterial growth. Rehydrating in room temperature water on the counter top should not take longer than 4 hours. If it does, put it in the refrigerator to rehydrate, or use boiling water (if making soups, sauces, jams, pie fillings, etc.)!

### SUMMARY

- Studies show that properly dehydrated and vacuum-sealed foods have a low risk of many pathogenic bacteria and fungi. Waterborne Bacteria like *Cl. botulinum*, are especially unlikely.

- Nevertheless, proper hygiene is important in dehydrating food! Wash your hands and foods with soap and water before dehydrating and wear gloves when handling dehydrated foods, and you should have no problems!

- Don't leave foods out in the open to rehydrate at room temperature for more than 4 hours. For items that take a longer time to rehydrate: use boiling water, or rehydrate in the refrigerator.

**Sources:** Want to see the data from these studies? Here it is!

1. Bergey, David, and David Boone. *Bergey's Manual of Systematic Bacteriology: Volume 3: The Firmicutes (Bergey's Manual of Systematic Bacteriology (Springer-Verlag))*. 2nd ed. 1. Springer: Springer, 2005. Print.
2. Boone, David, and Richard Castenholz. *Bergey's manual of systematic bacteriology [Vol. 1]*. 2nd ed. 1. Springer: Springer, 2005. Print.
3. Haines, R.B., & Elliot, E.M.L., 1946. “Some Bacteriological Aspects of Dehydrated Foods,” *Journal of Hygiene*, 43: 370-381.
4. Jay, James. *Modern Food Microbiology*. 7. Springer, 2005. Print.
5. Mcfarland, L.V., 2000. “Normal Flora: Diversity and Functions,” *Micro. Eco. in Health and Disease*, 12: 193-207.



## Dehydrating Rhubarb *Continued*

until it turns into a sauce, then blend with corn syrup and strawberries. Place on parchment paper or plastic bags as shown in our “Fruit Roll-ups” video at [Dehydrate2Store.com/videos](http://Dehydrate2Store.com/videos). Then dehydrate at 125 °F for about 12 hours.

### Rehydration

Rehydrating for cooking is just as easy as dehydrating. Just add ¼ cup dehydrated rhubarb to 1 cup of water and soak overnight while refrigerating. After soaking, cook the rhubarb on the stove until tender, and add it

to your favorite rhubarb recipe!



# Dehydrating Tofu

An Article by Nancy of Dehydrate2Store

Tofu, or soybean curd, is very nutritious. A half-cup serving of firm tofu contains zero cholesterol since it is plant-based, 10.1 grams of protein (twice the amount of protein you would get from a half cup of dairy milk), 22% of the recommended daily value of calcium, and has less than a third of the calories and a third of the fat found in ground beef. It also tastes great in a variety of dishes from stir-fry to soup to homemade tofu nuggets,



and is relatively cheap! *So why not dehydrate your tofu?*

Raw tofu comes in a variety of textures. Semi-firm to extra-firm textures work best when dehydrating because they contain less water and are easier to work

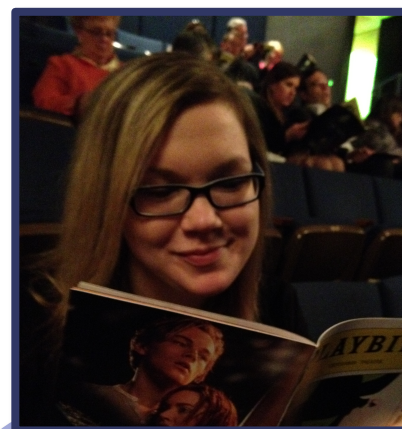
with without them falling apart. Silken tofu can also be used if properly drained. If you plan on using the tofu to cook with you can simply dehydrate it plain for quick addition to future dishes. Or, if you would like a healthy flavorful jerky-like snack to take camping, first soak your tofu in your favorite marinade.

### Prepping

First, drain any excess water from the bricks of tofu. Then cut the tofu into ¼ to ½ inch thick strips or chunks.

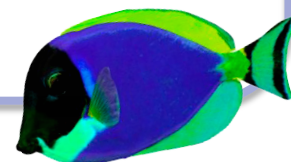
### Marinated Tofu

If desired, you can marinate the tofu in a variety of things including soy sauce, garlic and onion salt, or honey and brown sugar. Or, you can get creative and use dehydrated seasonings from your pantry and make a tofu snack to your taste. Allow the tofu to marinate in the refrigerator for a few hours then remove it from the refrigerator and let it come to room



## INTRODUCING: NANCY OF DEHYDRATE2STORE

The newest addition to our team, Nancy is a student specializing in molecular genetics, an avid dehydration expert, and a close friend to Dehydrate2Store! She will be contributing great articles each month to our newsletter!



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## Dehydrating Tofu *Continued*



Dried Tofu



Fried Tofu



**FUN IDEA**  
Try Nutritional  
Yeast on Popcorn!

temperature.

### Plain Tofu

If you do not wish to marinate your tofu, you can simply drain and dehydrate the raw tofu.

### Dehydrating Tofu

Place the cut pieces of tofu in single layers on the dehydrator racks. It is helpful to place parchment paper under the tofu to prevent sticking and to keep the marinade from dripping and creating a mess in the dehydrator. Space pieces slightly apart to allow air flow between them. Now place the racks in your dehydrator. The recommended dehydration time is 3-6 hours at 150-155 °F. The length of dehydration time will vary depending on the

brand and texture of tofu used, so be sure to check that the tofu is dried adequately before storing!

### Storing

Once dehydrated, allow the tofu to cool for at least ten minutes, then seal in a vacuum bag with oxygen packs, and store in a cool, dark place. You can also double bag the vacuum bag inside of a Mylar bag to prevent light damage to your food, and tampering by rodents. Tofu has a freezer life of around 3 months, and a refrigerator life of 3 days (if opened) to 70 days (if unopened). Once dehydrated, however, the shelf life of tofu is extended to one or more years if vacuum sealed properly. This makes tofu a long-lasting and healthy high-protein meat alternative.

## Nutritional Yeast *Continued*

package (.25 ounce) of active dry yeast is equal to one cake (.6 ounce) of compressed fresh yeast.

### How Should I Store My Starter?

A “starter” can be a flour, sugar, and water mixture that will absorb yeast from the environment to establish a yeast culture, or a pinch of dough from previously yeasted bread that will jumpstart a yeast culture in a new batch. How you store your starter depends on how long it will be before you use it again. If you will not use your starter for a month or two, you may freeze it in 1- or 2-cup portions and thaw it as necessary for your

recipes. If you think that you will be using your starter on a regular basis in the near future, it should be refrigerated. This will slow the fermentation process. To refrigerate your starter: feed it ½ cup of flour and ½ cup of water and place it in a loosely-covered non-metallic container. Stir and feed it every week or so, discarding starter periodically if you accumulate too much. If you plan on using it to make a batch of bread, take the starter out of the refrigerator, feed it 1 cup of flour and 1 cup of water, and let it sit for 6 hours or so to allow it to become strong and active.

**LEARN MORE:** To learn a few ways you can add nutritional yeast to your meals and reap the benefits of this wonder food just visit this URL:

[www.dehydrate2store.com/docs/yeast.pdf](http://www.dehydrate2store.com/docs/yeast.pdf)