

Sourdough Starter and Bread Presentation

“All grains contain **phytic acid** (an organic acid in which phosphorus is bound) in the outer layer or bran. Untreated phytic acid can combine with calcium, magnesium, copper, iron and especially zinc in the intestinal tract and block their absorption. This is why a diet high in unfermented whole grains may lead to serious **mineral deficiencies** and **bone loss**. The modern misguided practice of consuming large amounts of unprocessed bran often improves colon transit time at first but may lead to **irritable bowel syndrome** and, in the long term, many other adverse effects. Soaking allows enzymes, *lactobacilli* and other helpful organisms to **break down and neutralize** a large portion of phytic acid in grains. As little as **seven hours** of soaking in warm acidulated water will neutralize a large portion of phytic acid in grains. The simple practice of soaking cracked or rolled cereal grains overnight will vastly improve their **nutritional benefits**.

Soaking in warm water also **neutralizes enzyme inhibitors**, present in all seeds, and encourages the production of numerous **beneficial enzymes**. The action of these enzymes also increases the amount of many **vitamins**, especially B vitamins.

Scientists have learned that the proteins in grains, especially **gluten**, are very difficult to digest. A diet high in unfermented whole grains, particularly high-gluten grains like wheat, puts an enormous strain on the whole digestive mechanism. When this mechanism breaks down with age or overuse, the results take the form of **allergies, celiac disease, mental illness, chronic indigestion and candida albicans overgrowth**. Recent research links gluten intolerance with **multiple sclerosis**. During the process of soaking and fermenting, gluten and other difficult-to-digest proteins are partially broken down into simpler components that are **more readily available for absorption.**^{”i}

Why soak our grains?

1. To remove phytic acid which is in the outer layer or bran.
2. To neutralize the enzyme inhibitors.
3. To encourage the production of beneficial enzymes.
4. To increase the amounts of vitamins, especially B vitamins.
5. To break down gluten and make digestion easier.
6. Prevent mineral deficiencies and bone loss.
7. Prevent many health diseases and conditions.
8. Make the proteins more readily available for absorption.

Breads and Flour Products

Sally explains that the most delicious pancakes, muffins and cakes were made by soaking flour in sour or cultured milk, buttermilk or cream. If you are allergic to milk products you can use water with a small amount of whey or yoghurt, vinegar or lemon juice added to soak the flour. Flour products should be soaked at room temperature for at least 12 hours but better results may be obtained with a 24-hour soaking.

“Because they are acidic, buttermilk, cultured milk, yoghurt and whey (as well as lemon juice and vinegar) activate the enzyme phytase, which works to break down phytic acid in the bran of grains. Sour milk products also provide lactic acid and lactobacilli that help break down complex starches, irritating tannins and difficult-to-digest proteins. Soaking increases vitamin content and makes all the nutrients in grains more available. This method has the further advantage of so softening whole meal flour that the final product is often indistinguishable from one made with white flour. Breads, muffins and pancakes that have been made with soaked whole wheat, kamut or spelt flour rise easily with baking soda alone; they do not require baking powder. And they are not characterized by the heaviness that can make whole grain products so unpalatable.

If you do a lot of baking, a home grain grinder is a must. Grains quickly go rancid after grinding, and optimum healthy benefits are obtained from freshly ground flour. Unbleached white flour may be used for dusting pans, rolling out dough and kneading. We also allow unbleached white flour for pie crust.”ⁱⁱ

Sally also mentions that it will take longer to cook soaked whole grain flour preparations than those made with white flour. She recommends using stoneware muffin tins and bread pans. I like to use my stoneware cookie sheet to bake my sourdough bread. Sourdough bread also takes more time and dedication. They must be made with high-gluten flours, such as spelt, kamut, hard winter wheat or rye. You can also buy good sourdough breads from Mountain Eagle Bakery (406) 222-3617; Grain & Salt Society (800) 867-7258; or Miller’s Bakery (530-532-6384).ⁱⁱⁱ

Note: please avoid Bran and Wheat Germ. These are thought of as health foods, but are high in phytates (bran) and susceptible to rancidity (wheat germ).^{iv}

Sourdough Starter

2 cups freshly ground rye flour
2 cups cold filtered water
cheesecloth

6 cups freshly ground rye flour
Cold filtered water

Best results for sourdough starter are obtained from rye rather than wheat flour, perhaps because rye contains a lower phytate content than wheat. You will need two gallon-sized bowls. Total time to make the starter is one week.

Grind 2 cups flour and let it sit for a bit to cool. In one large bowl, mix flour with 2 cups of cold water. The mixture should be quite soupy. Cover with a double layer of cheesecloth secured with a rubber band-this will allow yeasts and bacteria to get in but will keep insects out. In warm weather, you may set the bowl outside in the shade if you live in an unpolluted area and not pesticides have been used in your garden. Otherwise, keep it in a warm open area indoors or on a patio.

The next day and every day for a total of 7 days, transfer the starter to the other clean bowl and add 1 cup freshly ground rye flour plus enough cold water (about 1 cup) to make a soupy mixture. Cover and let stand. After a few days the starter will begin to bubble and develop a wine-like aroma. It should go through a bubbly, frothy stage and then subside. After 7 days, the starter is ready for breadmaking. Use 2 quarts for a batch of sourdough bread (page 490) but save 1 quart for your next batch of starter. If not using remaining starter immediately, you may store it in airtight jars in the refrigerator or freezer.

Do not be tempted to add honey to your starter, as some recipes require. Honey encourages the proliferations of yeasts at the expense of lactic-acid-producing bacteria and may give you an alcoholic fermentation.

To start a new batch of starter, place the quart of leftover starter in a clean bowl. Add 1 cup freshly ground rye flour plus water each day, changing bowls, until 3 quarts are obtained.^v (Note: Soudough cultures are available from GEM Cultures 707-964-2922^{vi})

The following notes and three sourdough recipes are from Traditional Foods Preparation Workshop video by Maureen Diaz.

A small crock is good for storage of your starter if you use it often. Keep it covered, but not airtight. If you don’t use it that often, store the starter in a Mason jar in the refrigerator.

The edge of a crock can get cruddy looking and you can scrape that part away. You can also scrape some crust off the starter, but don’t throw it all out unless it smells rancid. Always leave some starter in the crock so you won’t have to start over from scratch. That would take seven more days.

Always REFRESH your starter when you . . .

1. Use some out of the Crock

2. Starter gets too sour!

Take some out of the crock and feed to animals or throw into the compost pile.

3. Add 1-cup flour & enough water (about 1 cup) to get a soupy consistency.

4. You can use other flours besides rye.

5. After you mix in the flour and water, cover the crock or jar with cheesecloth and a rubber band to keep the bugs out.

6. Now set the jar aside in a warm place over night.

7. You can use Spelt flour, Hard Winter Wheat, which has high gluten content. Some Kamut is fine.

Sourdough Bread

Place the following in a bowl:

1-cup sour dough starter

1 tablespoon sea salt (not table salt)

1-cup flour

¼ cup olive oil, extra virgin (**OR** ¼ cup melted

1-cup water (same amount as starter)

coconut oil)

Add more flour by the spoonful or half cups and stir into batter and mix in. You will need about 3 more cups of flour to make a ball of dough. You can knead right in the bowl if you like. I add just enough flour to make a slightly tacky ball. You don't want it too dry and not so wet that the dough sticks to your fingers.

Spelt is very high in gluten, which is the protein that holds the structure together. You don't need to knead as long as you would if you were using wheat flour.

All grains, seeds and nuts need to be properly prepared to remove the phytic acid content which irritates the intestinal lining over time or the enzyme inhibitors or both. These need to be neutralized.

Conditions needed to neutralize grains:

Warmth, Moisture (water), Slightly Acidic Environment and Time

It takes at least 7 (seven) hours to properly break these compounds down. Sour dough provides the right acidity along with moisture from water and time.

If you make your bread in the evening you will let it sit all night. In the morning you will shape the loaf, rise one more hour or so and bake.

In the morning: Add enough flour to knead into a soft, smooth, elastic lump of dough. Now place the loaf in a draft free area (on a board or cookie sheet) and cover with a towel to rest for at least one hour. You can leave it for one to four hours to rise a bit if you prefer.

After your loaf rests for one hour you slash the top of the loaf with a razor blade, knife or tool. Place the loaf directly onto a baking stone. I use my Stoneware cookie sheet. Preheat the oven to 450 degrees for a conventional oven. Cook for 15 minutes at 450, then lower the temperature to 400 degrees and cook about 30 minutes longer. If you have a convection oven start at 425 degrees for 10 minutes and then lower the temperature to 400 degrees for about 25 minutes.

Resist the temptation to cut into the loaf of bread when it comes out of the oven. Let it rest for at least one hour to let the flavors develop. Sourdough actually tastes better after it rests a while. Enjoy!

Question: What happens when you over knead your dough? The surface tears, it doesn't rise well and it cracks in the oven. If you add too much flour you could end up with a very tough, rock like bread.

Tortillas

Stir together in a bowl:

1-cup sour dough starter
1-cup water

1-tablespoon sea salt

Add soft wheat flour, one cup first then add the lard (1/3 cup) or coconut oil before adding the rest of the flour. Lard is the traditional way of making tortillas, but you can use coconut oil if you don't have lard available. Mix and add in spoonfuls of flour at a time. You will need approximately 3 more cups of flour for this batch. Keep on stirring in flour until you have a firm ball of dough. We recommend that you grind your own grains to have the freshest flour. This helps to keep the oils released from the grain from going rancid. If you buy your flour try to get it freshly ground and keep it in the freezer until ready to use.

Work your dough by kneading into a nice stiff dough which will be very much like sour dough bread. If you don't have sour dough starter you can use ¼ to 1/3-cup whey and the rest water (to equal one cup) in place of the sour dough starter.

You should end up with a nice, soft, textured dough, which is very smooth with a nice elasticity.

Set aside in an oiled or buttered bowl for 7 (seven) hours at least. Over night is good to be sure you have the seven hours before you work with it.

In the morning, pinch out a piece of dough the size of a walnut or larger if desired. Roll this out into a circle on a floured board.

If you have a tortilla press you don't have to roll the dough out. Just place the ball on the preheated press. You will cook and press at the same time. When the steam stops steaming it's done.

OR---Use a well-seasoned cast iron skillet. Preheat the pan to medium heat. No oil will be needed, however, I prefer to use teaspoons of coconut oil while cooking the tortillas. I keep adding coconut oil as needed to keep the tortillas from sticking to the pan. Cook one minute on each side to keep them soft for rolling. Leave a little longer if you want them crisper. Take out of pan and cool on a rack.

Tortillas are versatile. They can be used for desserts and are very fun and useful. I store my tortillas in a Ziploc bag in the refrigerator and pop them in the toaster for a quick lunch. I love to spread homemade cream cheese on a tortilla, add a sliced avocado, some cultured veggies or sauerkraut and mixed salad greens. Simply fold in half and enjoy!

Note: When cooking with flour you should always properly prepare your grains before cooking with them. If you don't have any prepared and are in a hurry, you can use ground almonds in place of flour. That will work for a lot of recipes. By using ground almonds in place of flour you can eliminate the soaking step for baking cakes, cookies, etc.

You could also use Bulgur Flour if you are in a hurry because real bulgur flour is sprouted (acids have been neutralized) and dehydrated. Don't confuse bulgur flour with cracked wheat (which has not been sprouted and neutralized). Cracked wheat is simply cracked with a machine. Bulgur flour has a distinct look that is different from cracked wheat. Bulgur looks like tiny irregular ground cracked pieces.

Buttermilk Pancakes

Mix together equal amounts of flour and buttermilk.

Use any combinations of flours, such as:

½ cup Spelt
½ cup soft wheat

½ cup Kamut
½ cup Buckwheat

2 cups Buttermilk -OR- 1 cup sourdough starter plus 1 cup milk or water (milk preferred)

After you mix the above ingredients set aside overnight. Put this “to bed” in a draft free area. In the morning you will see an elastic consistency that isn’t very appealing. That will change.

Put the following into a bowl:

4 cups batter	¼ cup organic butter, melted (but not raw butter)
2 eggs (one for each cup of flour)	

Stir eggs in first so you don’t cook them when the butter is added.

Now stir in the butter and add the following:

2 tablespoons honey	1 tsp sea salt
1 tsp Madagascar vanilla	2 tsp baking soda

The dough will still have a yucky consistency, but the pancakes turn out great. Now, heat the pan to medium heat. Add butter (to the pan) and don’t skimp on it. Once it’s hot, fry up like any other pancake. These are ready to flip when bubbly on the surface. You won’t have to adjust the batter when you want to add other ingredients, such as fruit and nuts. You may want to sauté chopped apples in butter and sucanat and add this mixture just before you flip the pancake. Add blueberries just before flipping, also. This recipe makes a very light pancake.

For Waffles: Double the amount of eggs and separate the yolks from the whites. The yolks go into the batter. Beat up the whites until stiff and fold into the batter at the very last. This makes a light fluffy waffle.

Waffles or pancakes can be made and frozen. Then you can toast them in the toaster. You can also put leftover batter into a Mason jar or crock and set out until the next day to use. This will give it additional time to ferment. A third option for leftover batter is to store in the refrigerator until used. The batter won’t go bad in a day or two.

OATMEAL (Sourdough) BREAD

Ruth Goeller's recipe

1 cup quick oats	2 1/2 cups boiling water (I used 2 cups boiling water and ½ cup cold water)
1/2 cup whole wheat flour	1 cup sourdough starter
1/2 cup brown sugar (I used 3 Tb Rapadura)	5 cups white bread flour (I used whole wheat flour)
1 tablespoon salt (I used slightly less salt)	
2 tablespoons butter	

Makes two loaves. Combine in a large bowl the oats, whole-wheat flour, brown sugar, salt, and butter. Pour boiling water over mixture. Stir to combine. When batter is cooled to lukewarm, add the starter and stir in the flour. When dough is stiff enough to handle, turn onto floured board and knead for 5 to 10 minutes. Place in a greased bowl, cover and let rise until doubled (about 4 hours in my oven with the light on). Punch down and separate into 2 equal balls. Shape into loaves and place in greased 9 X 5 X 3 inch pans. Let rise until doubled again. Bake for 30 to 40 minutes at 350 F. Cool on rack, brushing loaves with butter for a soft crust.

Ruth is a friend of mine at church and she shared the recipe with me several years ago. I just modified it a little to use the sourdough starter, which makes it better than ever. I take the sourdough starter out of the refrigerator the night before and feed it to make it good and active. The resulting bread is fantastic. Please share the recipe with your friends if you like the bread.

Tester's Notes: This recipe makes beautiful soft dough that bakes into great pan bread or it can be made into very tasty dinner rolls. Take the words "punch down" with a grain of salt. Be gentle with this dough. The more air you work out of the dough when forming the loaves, the longer it will take to recover volume in the second rise.

Be sure to allow enough time for the batter to cool to lukewarm before adding the sourdough starter. It took two hours or more when tested. Taste testers disagreed on the amount of salt some preferred a little less; others liked the taste with the full tablespoon.

Ovens vary. Test bakes took around 50 minutes in the test kitchen. We removed the bread from the pans for the last ten minutes of baking to brown the bottom half of the loaves.

Treat yourself to real butter in the dough. This bread is worth it. Also butter the pans, you will be rewarded with an amazing butterscotch smell when the butter toasts the brown sugar sweetened dough while baking.^{vii}

Sharon Foutch's note: I LOVE this bread. It has a wonderful texture and great flavor. I made one loaf on my stoneware cookie sheet and another loaf in a Pyrex bread pan. Both are great. I reduced the sugar as noted above. I also reduced the amount of hot water so I could add some cold water to cool down the batter faster (before adding the starter). I mixed this up on Monday at noon; let it sit in the bowl covered until Tuesday morning around 8:30 am. Then I shaped it into two loaves and let it rise until 11:30 am. Total rising time almost 24 hours! This was done in 40 to 45 minutes in a 350 F. oven.

Other Resource:

Article- *Our Daily Bread*

This article explains that one celiac man was able to consume a properly prepared (4 hours of leavening) loaf of sourdough bread. It was thought that the sourdough culture-yeast, which is the leavener and the bacteria that develop the gluten and thereby the taste, would somehow digest the gluten. After much thought and consideration the Russian man, Vasilii, decided to try his son-in-law's delicious sourdough bread with caution. No reaction was noted after a couple of days and so he ate the bread again. Again, no reaction. He continued to enjoy the bread, but not every day for a year and a half. He has never had any adverse reaction. And now he even tolerates oats and corn and spelt (which he was unable to do initially). **Caution: It is not known if every person with celiac disease could tolerate this bread.**

The article goes on to say:

“According to a recent article in *Science Magazine* (Sept. 27th, 2002), gluten in grain is not fully broken down, even by all the digestive enzymes normally present in the digestive track. What does break down gluten, according to the article, is a bacterial enzyme . . . just what the bacteria in a sour dough culture are likely to produce! The Science article stated sadly that it would be years before medicine would have a pill available for celiac sufferers-but why not just apply a little logic to the problem and go back to preparing bread with a long fermentation. This ancient method not only seems to digest or completely break down the gluten, but also **neutralized enzyme inhibitors (that interfere with digestion) and phytic acid (that block mineral absorption)**. Bread prepared in this old fashioned way is truly the staff of life-a highly nutritious storage food that provides many nutrients in a form that is delicious and easy to digest.” Recipe for Garrick's sourdough bread is included at the end of the article in *Wise Traditions*.^{viii}

Written by Sharon Foutch on April 4, 2006

ⁱFallon, Sally. *Nourishing Traditions Cookbook* Revised Second Edition page 452-453

ⁱⁱ *ibid*, page 476

ⁱⁱⁱ *ibid*, page 626

^{iv} *ibid*, page 476

^v *ibid*, page 489

^{vi} *ibid*, page 628 Sources

^{vii} recipe posted on www.thefreshloaf.com

^{viii} Czapp, Katherine with Garrick Ginzburg-Voskov. *Wise Traditions* quarterly magazine Volume 4 Number One - Spring 2003, page 12 -17