

# Sour Dough Bread and Health

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In the instance of cancer, instead of treatments that either slash, burn or poison away the tumors and cancer cells, we are going to eat our way with pleasure to stronger health while removing one more cause of cancerous conditions. Research at the Cancer Immunology Program at the Peter McCallum Cancer Centre in Melbourne, Australia has shown recently that the human immune system can stop the growth of a cancerous tumor without actually killing it. There are many natural ways we can increase immune system strength and function and this is vital in our fight against cancer and many other chronic degenerative diseases. The consumption of spirulina in large quantities is at the top of my list of natural agents but in this chapter we rediscover Sourdough bread as "the staff of life," for it enhances the entire immune system.

*If Americans do not change their eating and drinking habits  
within twenty years we will have nutritional obliteration.*

Dr. James Beasley  
Ford Foundation Project

Most of us do not know that before the 1950's most bakeries ran 2 shifts of workers because the dough was fermented throughout the night with a long and slow natural fermentation process. The very first things corporate bakers did to increase profits was to introduce the fast loaf (3 hours from start to finish), effectively eliminating the need for this second shift of workers. This seemingly innocuous cost-cutting decision would prove to have an incredible impact on our health as have a host of commercial processes in the food and agricultural areas.

The catastrophic changes in bakery procedures were a disaster that went largely unnoticed and today some bakeries produce some bread in just 40 minutes from start of dough to baked finish. The general public has become conditioned to commercial bread products and is uninformed about the effects of the commercial processing that regular bread undergoes.

*Free of commercial yeast, sourdough breads have  
an aroma and distinctive flavors all of their own  
and are naturally leavened by a fermented starter.*

Very basic sourdough bread that had once been fermented for a healthy 8 hours or more is not to be found anywhere except in ones own kitchen today. In commercial bread yeast levels are dramatically increased, accelerants and proving agents introduced including bromide, a known thyroid poison that was insanely substituted for iodine in the US. Fast-made bread is one of the most destructive implementations into the modern diet. It has become normal fare. Poorly-prepared and poorly-digested wheat is the chief contributor to the current plague of "gluten-intolerance," obesity, diabetes, Candida diseases and many allergenic conditions all of which contribute to the conditions that cause cancer.

Only when wheat gluten is properly fermented is it healthy for human consumption. When not it is potentially one of the most highly allergenic foods we eat. It is similar to the controversy with soy which also can only be considered a health food if it is fermented long enough. Correctly fermented wheat contains 18 amino acids (proteins), complex carbohydrate (a super efficient source of energy), B vitamins, iron, zinc, selenium and magnesium, and maltase.

*It is important to understand that the longer  
the ferment time the less yeast is required.*

Bread was first leavened by the Egyptians around 2300 BC. They discovered that a mixture of flour and water left uncovered for several days bubbled and expanded. If mixed into unleavened dough and allowed to stand for a few hours before baking, it yields light sweet bread. This kind of natural leavening remained the basis of Western bread baking until the 20th century when bread made from commercially prepared yeast was introduced.

Naturally leavened breads rise over time (6 to 8 hours) by the action of wild yeast spores drawn into the sourdough starter from the air. Mixing the starter with more flour and water and a little salt forms bread dough. As the unique and complex family of friendly bacteria thrives on the nutrient-rich whole grain flour and mineral-rich salt, they produce carbon dioxide gas. Fermentation continues, and the leavening or expansion of the bread dough creates a fine-grained, moist texture.

*These beneficial bacteria in sourdough help control candida  
albicans, whereas baker's yeast is a pro-candida organism.*

The fermented quality of naturally leavened bread has several healthful advantages over yeasted breads. Yeasted breads are raised very quickly by a refined yeast strain that has been isolated in a laboratory under controlled conditions. In the process of making sourdough bread, during the rising time (called proofing), bran in the flour is broken down, releasing nutrients into the dough. In particular, the phytic acid (phytin) in grain needs to be 90% neutralized in order for the minerals, concentrated in the bran, to be absorbed by the human body. According to the experiments done in Belgium, phytin can be neutralized by natural bacterial action and to a lesser extent, by baking. In naturally leavened bread, the combination eliminates all phytin, while in yeasted bread about 90% remains.

*People with allergies to commercially yeasted breads may  
not have the same sensitivities to naturally leavened  
whole grain sourdough bread.*

With sourdough bread, complex carbohydrates are broken down into more digestible simple sugars and protein is broken down into amino acids. Enzymes develop during proofing which are not lost in baking since the center of the loaf remains at a lower temperature than the crust. It's the fermentation, partly from lactobacillus, that makes eating good quality bread an aid to digestion of all complex carbohydrate foods including other grains, beans, and vegetables. It helps restore the functioning of the digestive tract, resulting in proper assimilation and elimination.

In a study comparing the effects of sourdough bread with commercial bread, researchers reported that sourdough bread significantly lowered serum glucose and insulin responses and gave

greater satisfaction than the other bread. "It is concluded that sourdough baking and other fermentation processes may improve the nutritional features of starch," the researchers concluded.[i] Sourdough bread rates a 68 on the glycaemic index as opposed to the rating of 100 by other breads. Foods that have low ratings on the glycaemic index are prominent in societies that tend to have lower incidence of diseases and unhealthy conditions that run rampant in our culture such as diabetes.

Researchers in Sweden at Lund University have noted that the fermentation process that's involved in the creation of sourdough utilizes carbohydrates, lowering the carbohydrate level in the dough as it's transformed to lactic acid. The result of this process means that sourdough bread can aid in ensuring that your blood glucose level remains in line, helping to guard against various diseases especially diabetes.

About 95% of the flour used in the USA is white.  
Only 20 to 30% of the grains original vitamins are retained.

Natural leavened bread, because of its inherent beneficial ferments, slowly recreates the population of friendly lactobacillus digestive bacteria in the absorption tract. The end result is a recovery of digestion and proper elimination by the effective action of friendly bacteria. Numerous studies demonstrate that populations with the highest fiber intake have the lowest incidence of colon cancer.

In an article, published in 1984 in East-West Journal, Ronald Kotsch describes why conventionally yeasted bread contributes to disease. "In (conventional) yeast fermentation, the starch cells of the bread actually explode. The patterns they form are identical to those of cancer cells. According to French researcher Jean Claude Vincent, the bio-electrical energy of the dough also is identical to that of cancer cells."

According to Walter Last, "Undigested gluten from quickly risen bread can seriously weaken the intestinal wall. Its effect on the tiny absorption villi in the small intestine may be compared to the action of sandpaper on wood. Animal experiments have shown that the intestinal absorption villi are long and slender before they come into repeated contact with wheat protein. Afterwards, they become blunt and broad, with a much-reduced ability to absorb. This greatly contributes to the widespread incidence in our society of people with problems of malabsorption and who are missing out on vital nutrients. In such people, not only are the absorption villi blunted, the irritation caused by the sandpaper effect of gluten produces a protective mucus coating over the intestinal wall and this makes it still more difficult for nutrients to pass through the intestinal wall."

Thus we find gluten, and especially wheat gluten, implicated in malabsorption diseases, arthritis, autoimmune diseases, cancer, diabetes, and just about every disease under the sun. When things go wrong in our guts we do not receive the nutrition we need. Malnutrition is one of the major factors that lead to disease including cancer.

Since bread and wheat products are such an important part of daily food consumption, it follows that such food items be healthy and wholesome. Today's milling, refining, bleaching, enriching, and addition of various chemicals to flour and baked breads cause many scientists and medical workers to question their nutritional quality as well as their safety.

Traditionally starters were passed down from generation to generation but if you don't know someone who has it one can simply mix some flour and water (some suggest starting it with fresh pineapple juice instead of water) and leave it out on the counter for a week or until its bubbling. During this process the natural yeast and bacteria in the air will impregnate the mixture) Sourdoughs are fermented by a variety of lactic acid bacteria, called Lactobacillus, which consume sugar to form carbon dioxide and hydrogen gas. They also produce lactic and acetic acids, which give sourdough breads their distinctive flavor. Traditional sourdoughs do not contain baker's yeast.

Storage methods for breads that contain no additives are very important to maintain freshness and to avoid spoilage. The staling process begins for regular yeasted bread as soon as the bread is removed from the oven. Sourdough bread on the other hand increases in nutritional value for days. Freezing bread prevents microbial spoilage. Baked bread can be kept frozen for three months without losing flavor. Interestingly, slightly stale bread is more easily digested than fresh bread, up to ten days, after which there is a reversal (Jackel et al., 1952). When I used to make sourdough bread I would make many loafs but would wait two days before freezing any of them to let the natural yeast continue to work in the bread.

Use organic whole wheat stone ground if possible. The toxicity of pesticide residues on food depends on whether organs, including the liver, have the ability to metabolize them and their resulting metabolites (Hayes & Borzelleca, 1982). There is evidence that pesticides also interact with other chemicals and nutrients in the diet (Dubois, 1972). Chronic poisonings have occurred from ingesting aflatoxins from grain due to inappropriate cleaning (Opitz, 1984; Pfander et al., 1985).

There are several advantages to stone-ground wheat flour. The endosperm, bran, and germ remain in their natural, original proportions. Because the stones grind slowly, the wheat germ is not exposed to excessive temperatures. Heat causes the fat from the germ portion to oxidize and become rancid and much of the vitamins to be destroyed (Aubert, 1989). The nutritional importance of using fresh stone-ground grains for bread-making was revealed in the results of feeding studies in Germany (Bernasek, 1970). Rats were fed diets consisting of 50% flour or bread. Group 1 consumed fresh stone-ground flour. Group 2 was fed bread made with this flour. Group 3 consumed the same flour as group 1 but after 15 days of storage. Group 4 was fed bread made with the flour fed to group 3. A fifth group consumed white flour. After four generations, only the rats fed fresh stone-ground flour and those fed the bread made with it maintained their fertility. The rats in groups 3 to 5 had become infertile. Four generations for rats is believed to be equivalent to one hundred years in humans.

[i] H. G. Liljeberg, et al., "Sourdough Fermentation or Addition of Organic Acids or Corresponding Salts to Bread Improves Nutritional Properties of Starch in Healthy Humans," *Journal of Nutrition* 125 (6)1503-11, 199