

WHOLE GRAINS

The well-meaning advice of many nutritionists, to consume whole grains as our ancestors did and not refined flours and polished rice, is misleading and often harmful in its consequences; for while our ancestors ate whole grains, they did not consume them as presented in our modern cookbooks in the form of quick-rise breads, granolas and other hastily prepared casseroles and concoctions. Our ancestors, and virtually all preindustrialized peoples, soaked or fermented their grains before making them into porridge, breads, cakes and casseroles. A quick review of grain recipes from around the world will prove our point: In India rice and lentils are fermented for at least two days before they are prepared as *idli* and *dosas*; in Africa the natives soak coarsely ground corn overnight before adding it to soups and stews, and they ferment corn or millet for several days to produce a sour porridge called *ogi*; a similar dish made from oats was traditional among the Welsh; in some Oriental and Latin American countries rice receives a long fermentation before it is prepared; Ethiopians make their distinctive *injera* bread by fermenting a grain called teff for several days; Mexican corn cakes, called *pozol*, are fermented for several days and for as long as two weeks in banana leaves; before the introduction of commercial brewers yeast, Europeans made slow-rise breads from fermented starters; in America the pioneers were famous for their sourdough breads, pancakes and biscuits; and throughout Europe grains were soaked overnight, and for as long as several days, in water or soured milk before they were cooked and served as porridge or gruel. (Many of our senior citizens may remember that in earlier times the instructions on the oatmeal box called for an overnight soaking.)

This is not the place to speculate on that mysterious instructive spirit that taught our ancestors to soak and ferment their grains before eating them; the important thing to realize is that these practices accord very well with what modern science has discovered about grains. 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 phytic acid. 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 amounts 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.

Animals that nourish themselves primarily on grain and other plant matter have as many as four stomachs. Their intestines are longer as is the entire digestion transit time. Man, on the other hand, has but one stomach and a much shorter intestine compared to herbivorous animals. These features of his anatomy allow him to pass animal products before they putrefy in the gut but make him less well adapted to a diet high in grains—unless, of course, he lets the friendly bacteria of the microscopic world do some of his digesting for him in a container, just as these same *lactobacilli* do their work in the first and second stomachs of the herbivores.

Grains fall into two general categories. Those containing gluten, such as oats, rye, barley and especially wheat, should not be consumed unless they have been soaked or fermented; buckwheat, rice and millet do not contain gluten and are, on the whole, more easily digested. Whole rice and whole millet contain lower amounts of phytates than other grains so it is not absolutely necessary to soak them. However, they should be gently cooked for at least two hours in a high-mineral, gelatinous broth. This will neutralize some of the phytates they do contain and provide additional minerals to compensate for those that are still bound; while the gelatin in the broth will greatly facilitate digestion. We do not recommend the pressure cooker for grains because it cooks them too quickly.

We use several grains that are new to the Western vocabulary. One is spelt, an ancient grain of the wheat family praised by the medieval sage St. Hildegard as being particularly suited to the sick and those of a weak constitution. It contains gluten and gives excellent results for sourdough bread. Some studies indicate that spelt gluten breaks down easily during fermentation, making it more digestible than modern varieties of wheat. In most cases, spelt can be substituted for modern wheat varieties in whole grain breads and pastries. Another ancient nonhybrid variety of wheat is kamut, which dates back to early Egyptian times. Some people who are allergic to modern varieties of wheat report better results when they use kamut or spelt instead.

Teff is a grain from northern Africa, invariably fermented before being made into bread. Quinoa comes from the South American Andes and was first described in Western literature by Dr. Weston Price. He noted that women in the Andes

valued quinoa for its ability to stimulate breast milk. Not technically a grain, but the fruit of the Chenopodium family, it has superior nutritional properties. All quinoa products should be soaked—Andean Indians recognize that the antinutrients in quinoa are neutralized in this way. Amaranth is another newly discovered grain, also from South America, that can be used in many of the following recipes. Buckwheat, another neglected grain, is valuable for its high content of cancer-preventing nitrilosides. Like quinoa, buckwheat is not technically a grain but the seed of an herb, a relative of rhubarb.

Our readers will notice that our recipes for breakfast cereals are all porridges that have been soaked overnight before they are cooked. If you buy grains that have been rolled or cracked, they should be in packages and not taken from bins, where they have a tendency to go rancid. Even better, buy organic or biodynamic whole grains and roll or crack them yourself using a roller or grain grinder. (See Sources.) You may also add a little ground flax seed to start your day with a ration of omega-3 fatty acids. (Flax seed is low in phytic acid and does not require soaking if it is eaten in small amounts.) These porridges marry very well with butter or cream, whose fat-soluble activators provide the necessary catalyst for mineral absorption. Those with milk allergies can usually tolerate a little cream on their breakfast cereal or can eat them with butter—a delicious combination. We do not recommend soy milk, which contains many antinutrients.

Nor do we recommend granola, a popular "health" food made from grains subjected only to dry heat and therefore extremely indigestible. Granola, like all processed breakfast cereals, should have no place on our cupboard shelves. Boxed breakfast cereals are made by the extrusion process, in which little flakes and shapes are formed at high temperatures and pressures. Extrusion processing destroys many valuable nutrients in grains, causes fragile oils to become rancid and renders certain proteins toxic. For a new generation of hardy children, we must return to the breakfast cereals of our ancestors—soaked gruels and porridges.

A word about corn: Traditional recipes call for soaking corn or corn flour in lime water. This releases nicotinamide (vitamin B₃), which otherwise remains bound up in the grain. Soaking also improves the amino acid quality of proteins in the germ. If you use corn products often, the simple precaution of soaking corn flour in lime water will help avoid the vitamin B₃ deficiency disease pellagra with its cruel symptoms of sore skin, fatigue and mental disorders. To make lime water, place about *1 inch pickling lime* (see Sources) in a 2-quart jar. Fill jar with filtered water, shake well, cover tightly and let stand overnight. The powder will settle and the resultant clear liquid is lime water. Store in a cool place (it's not necessary to refrigerate) and use for soaking cornmeal by pouring out carefully. You may also use commercial *masa* flour which is cornmeal that has been prepared by soaking corn kernels in lime water before grinding. However, like all whole grain flours, cornmeal quickly goes rancid and develops a bitter taste, so it's best to grind your own corn. (For corn mills and whole corn kernels, see Sources.)