

How to Cook Vegetables

by Isabell Hoeh

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VEGETABLES, we are told, contain vitamins and minerals that all of us need for good health.

Yet doctors and nutritionists say that most Americans suffer from "hidden hunger." Vitamin preparations are advertised in every newspaper and over every radio. Doctors prescribe them for their patients. Why?

Obviously, it is not because there is a food shortage.

The answer lies in the way so much of the food today is processed and prepared. Refining, preserving and shipping fresh foods long distances cause much of the loss in food value; *the rest of the responsibility is with the housewife*. She is accountable for selecting and preparing the vegetables and fruits that the family eats. She needs to know how to do this so that as little as possible of the food value is lost.

Health Begins in the Soil

Health, of course, begins with the soil. Those who have home gardens should make sure the soil is fertile—able to grow plants rich in minerals and vitamins. Two vegetables or fruits of the same kind can look alike, yet one may contain several times as much food value as the other. *The kind of soil it was grown in makes the difference.*

The ideal time to gather vegetables is just before preparing them. Vegetables allowed to stand in light or at room temperature gradually lose vitamins. Either chill them in a refrigerator or cook them near the boiling point as soon as possible.

Those who depend on the corner grocery for fresh vegetables should learn to know which vegetables have the most health value.

Generally, the morning is the best time to buy vegetables. Then they have just been removed from the refrigerator or have just arrived from the farm, and other customers have not already picked the best vegetables from the stock. Avoid buying wilted vegetables. They have lost most of their original vitamins.

Choose the least-trimmed cabbage and lettuce. Their vitamin content may actually increase for sometime after harvesting. The same is true of carrots and other root vegetables which still have their tops and roots, providing they are not wilted.

Buy deep yellow and green vegetables more often than pale ones—they contain several times as much of some

vitamins and minerals. Select green lettuce and celery instead of the blanched. Leaf lettuce has about three times the vitamin A value that head lettuce does. If two heads of cabbage or other vegetables are the same size, usually the heavier of the two is the better one.

Ripe, sweet peppers are twice as rich in vitamin C as green peppers. Choose summer squash which have a soft skin so that they can be cooked with the peeling on. Yellow corn is better than white corn because it has vitamin A value.

Care of Vegetables

As soon as the vegetables are brought home they should be sorted and stored.

First wash them thoroughly under cold running water, or quickly dip them several times into fresh water. This is to remove dirt and insect sprays that may cling to the leaves and roots. Leave the vegetables on paper towels or drainboard for a short while so that surplus water can drain off. Those to be used in salads may be dried more thoroughly as oil or other dressings stick better to dry leaves. Place such vegetables in a cheesecloth bag or an old pillowcase and sling it around a few times.

After they are washed and drained, put the vegetables in a covered refrigerator pan. Plastic bags also make good containers for vegetables stored in a refrigerator. Parsley and celery leaves stored in a closed fruit jar keep fresh a long time in a refrigerator. Potatoes, onions and similar vegetables with peelings require no washing until they are used, and need only to be kept in a cool place.

Soaking vegetables is never a good practice. The B vitamins, minerals and vitamin C easily dissolve in water. Peeling such vegetables as carrots and potatoes and letting them set in a pan of water until time to cook is one of the best ways to start your family *down the road to vitamin and mineral DEFICIENCY.*

Much time, not to mention food value, can be saved by cooking vegetables unpeeled. Beets may be boiled whole if their roots and at least an inch of the tops are left on. If root vegetables are peeled before cooking, the minerals and vitamins concentrated directly beneath the skin are cut off with the peel. The only good reasons for peeling are if the skin is bitter, bruised or tough. All of the vitamin A in a cucumber is contained *in its skin*. For salads they should

be picked young enough that the skin is still tender. Then only the bitter ends need be cut off, and the rest sliced very thin, never over one-eighth inch thick.

Sometimes carrots, radishes and turnips become wilted before they are used. They can be crisped by making a fresh cut on the root tip and left to stand in cold water for an hour or so. They draw up water through the tap root just as they did while growing.

Preparing Vegetables for Cooking

The main reason vegetables are cooked is to soften the woody tissues. In the case of starchy foods like potatoes and dried beans, heating makes the starch more digestible. Some nutritionists have found that cooked carrots yielded up to 30 per cent more vitamin A during digestion than raw carrots.

Remember not to take the vegetables from the refrigerator until it is time to prepare them.

The question often arises, "Should vegetables be sliced, diced, shredded or left whole?" Each method has disadvantages. If the vegetable must be peeled, usually the way it will cook the quickest is the best. However, be sure to use any juice the vegetable is cooked in because B vitamins easily pass from the cut vegetable to the water. If the vegetable is cut into small pieces, the surface exposed is greatly increased. A diced vegetable has less exposed surface than a sliced one. With more surface exposed to water or steam, more vitamin B goes into the juice. Mashing a vegetable while it is hot mixes air with it, causing a great loss of vitamins A and C.

(Vitamins A, B and C are most often mentioned because they were the first ones discovered and more is known about them. Other vitamins that have been found behave during cooking in more or less the same ways as these. If A, B and C are preserved usually such vitamins as P, E and K are also.)

Cooking Methods

Steaming is considered one of the best cooking methods. It requires pots that have close-fitting lids. *Usually water to the depth of one-fourth to one-half inch in the pot is enough.* Most housewives use too much water in cooking. The amount depends on how long the vegetable will need to cook and how much steam escapes during cooking. As a rule a light weight pot needs more water than a heavy weight one.

Put in the water, cover and bring to a boil. Have the vegetable ready to put in all at once. Put it in when the water boils, cover and leave the heat fairly high until the water begins to boil and form steam. *Do not bring to a fast boil.* Turn the fire just low enough that the water bubbles gently. With practice, you should be able to tell without raising the lid.

Carrots, turnips and rutabagas are often prepared either diced or sliced. Broccoli and cauliflower should be broken into walnut-sized pieces so that they do not become strong from long cooking. Cabbage is good cut into inch-thick wedges and steamed.

Some cooks have the habit of adding a little sugar to nearly every vegetable they cook. Vegetables contain natural sugars and if cooked the right way, there is no reason to add sugar. Some persons like tomatoes sweetened.

Small potatoes, beets, parsnips and onions may be steamed whole. Corn-on-the-cob is best steamed, too, except that a little more water may be needed than for other vegetables. Perhaps you have noticed how colored the water becomes when corn has been improperly cooked—covered with water and boiled. The yellow color you can see is carotene (pro-vitamin A) that has come out of the corn. You cannot see the other food values that the water soaked from the corn because they are not colored like the carotene.

If leafy vegetables like spinach are freshly washed and started to cook over a very low flame, the moisture clinging to the leaves will provide enough moisture to cook them. No other water needs to be added. A large batch of greens should be turned over after about the first seven to ten minutes. Otherwise, the leaves on the bottom will be overcooked when the ones on top are just done.

Simmering in milk is a good way to cook fresh, tender vegetables like cabbage, corn, peas and green limas. An advantage is that the milk proteins preserve the green color. (Soda should never be used to preserve green color in vegetables because alkaline solutions destroy some vitamins.) Be careful that the milk only simmers; *too much heat will cause it to boil over.* Follow the same steps as for steaming. At the end of the cooking time a little flour thickening may be added to make a cream sauce.

Sautéing is a good method to use when the vegetables are shredded or sliced thin. Heat one or two tablespoons of vegetable oil in a skillet or heavy pan which has a tight-fitting lid. Put in the shredded or sliced vegetable all at once and stir until all is coated

with oil. With dry vegetables like parsnips or carrots, add 2 or 3 tablespoons of water. Then cover.

When the vegetable begins to steam, turn the heat low and continue cooking from 5 to 10 minutes. Cabbage and spinach prepared this way should be cut thin; carrots, beets, parsnips, potatoes and winter squash are best sliced. In *sautéing* the vegetable actually cooks in its own juice—nothing is lost in cooking water. After it is cooked, the vegetable may be seasoned with sweet-sour sauce or in other ways.

It is a waste of butter to use it for *sautéing* or frying. It scorches easily, and the heat destroys its vitamin A. When used for seasoning, *butter should be added AFTER the food is cooked.*

Frying differs from *sautéing* in that more oil and no water is used. Usually, frying is done when some browning is desired such as with potatoes or meat. Eggplant is delicious sliced into half-inch slices (leave *unpeeled*), dipped in milk, then in wheat germ. Lightly brown each batch on both sides in an oiled skillet over moderate heat and then remove. After all the slices are browned, replace them in the skillet, add salt and one-fourth cup of water or milk, cover, and steam about 10 minutes.

We find in Leviticus 7:9 that some of the meat offering was dressed in a frying pan, and in verse 12 cakes of fine flour and oil were said to be fried, but no instance where vegetables were fried is found.

The *double-boiler* presents another way for cooking vegetables, especially the more tender kinds. Put three or four tablespoons of water in the top part and bring to a full boil over direct heat. (More water may be needed in a large double-boiler.) Drop in the vegetable and put the lid on. When the water is about all evaporated, put the upper part of the double-boiler over water that has been brought to a boil in the lower part, and cook until tender.

Baking is a good way to cook certain kinds of vegetables. White potatoes, yams, winter squash, carrots and parsnips are all good cooked in the oven. The carrots or parsnips are cut into lengthwise strips, placed in a *hot* baking dish, dotted with butter, and honey, if desired. They should be covered with a lid to prevent drying. The dish is heated in the oven before the vegetable is put into it so that the food heats through faster. A cold dish filled with food is slow to heat in an oven.

Potatoes of both varieties *bake* quickly and do not become dry if they are allowed to stand a few minutes in hot water before being placed in the oven. For a crisp skin they can be wiped dry and oiled before baking.

General Rule

The general rule for cooking is to quickly slice or otherwise prepare the vegetable, heat it in the pot as quickly as possible, then reduce the heat so that it does not boil. Be sure to have a close-fitting lid so that the steam is kept in. Long cooking at too low a temperature is just as bad as boiling. More vitamins survive a short cooking time, even though the temperature is near boiling.

The "strong" flavor which cabbage, cauliflower and brussels sprouts are said to have, *develops only when these vegetables are overcooked.* It is due to sulphur compounds in them breaking down after long cooking, or from boiling.

Like soda, soap is an alkali. If the cooking ware has not been rinsed thoroughly, traces of soap will get into the foods cooked in them and damage vitamins. A little vinegar added to hard water will help in rinsing. If you cook with hard water, add a few drops of vinegar to the water before cooking vegetables.

In all of these methods the vegetable is salted *after* it is cooked. When water does not surround the vegetable during cooking, salt draws moisture out of it—moisture which contains vitamins and minerals. This loss of moisture also toughens some vegetables.

Canned Vegetables

Since the nation has become so vitamin-conscious, some have wondered how much food value remains in canned vegetables. For several reasons, they are often, though not always, just as good as vegetables bought at the market and cooked at home. *They are not as good as fresh home-grown vegetables* that have been correctly prepared, however. Canneries generally process vegetables the same day they are picked. Vegetables to be canned are picked when they have reached their best maturity, whereas many fresh vegetables seen at the grocery were picked immature if the source was any distance from the city. The vacuum-pack process which many canneries now use preserves more vitamins than older processes did. By this method the vegetable is packed cold in the can and afterward heated and sealed.

The greatest mistake most housewives make in serving canned vegetables is draining the juice off. If it is served with the liquid, usually only the solid portions are eaten and the juice remains to be thrown away. The liquid in the can contains the largest share of the vitamins and minerals and *must be eaten* to get the full value from canned vegetables.

Canned foods are already cooked and should be heated only to the boiling point before serving. One vegetable—tomatoes—loses very little in canning

because its acid content prevents much loss. Tomato juice is sometimes a better source of vitamin C than storage oranges.

Frozen Vegetables

Frozen vegetables, though not as good as freshly picked and cooked ones, are better than canned vegetables if correctly stored and cooked. The two-to-four-minute blanching (dipping in boiling water) that most vegetables undergo before freezing undoubtedly takes out some vitamins and minerals.

Since vitamin C deteriorates as soon as thawing begins, *frozen vegetables should not be thawed before they are cooked*. Pounding the unopened package with a heavy object will break up the frozen mass so that the vegetable heats more evenly after it is put into the boiling water. The unopened package can be partially thawed in cold water if one is in a hurry. Frozen vegetables should be *cooked only a short time* after they reach the boiling point—5 to 8 minutes is usually enough.

Pressure Cooking

Pressure cooking has often been presented as a good method for preserving

food value because the cooking time is short. The disadvantage is that after the cooking time is up, it is difficult to cool the pan quickly enough to prevent the food inside from becoming *overcooked*.

Usually, the manufacturer furnishes directions describing how the pressure saucepan is to be used. The processing times given for each vegetable should be carefully observed. One has to be a clock-watcher to successfully cook with a pressure saucepan or cooker. This method of cooking should be useful at high altitudes where food does not cook easily.

Waterless cooking has come into vogue in recent years. This method requires a heavier-than-ordinary pot made of a material that will conduct the heat evenly in the sides and top as well as on the bottom. Such ware is quite expensive, beyond the reach of most people. The manufacturer usually includes or gives directions for using it.

Even this type of utensil is more efficient if a small amount of water is put in to begin steaming, thus shortening the cooking time. If no water at all is put with most vegetables, the fire *must be very low* from the beginning to

avoid burning the food. This slow heating lengthens the cooking time.

Serving

After the vegetable is cooked it should be served as soon as possible. In the event the meal is delayed, the food should be covered. Food kept warm for any length of time loses vitamins faster than if it were chilled.

Leftover vegetables should be placed in covered dishes and kept in the refrigerator because some destruction of vitamins occurs as long as the food is exposed to warmth, air and light. *Such vegetables are best used cold in salads*. However, if they are reheated, it should be done quickly in a covered pan or in the top of a double boiler.

The conclusion, then, is that there is no way of cooking vegetables that preserves *all* the vitamins, but there are methods that destroy *less* of them. It is estimated that everyone needs five times as much vitamin C as of any other vitamin; yet that is the very vitamin that cooking destroys the most of. *That is why no one should eat ONLY cooked vegetables*. A raw salad, some citrus fruit or tomato, and another fruit should be included each day in the diet.

Meat for the Meal-Planner

by Isabell Hoeh

IT IS NOT an exaggeration to say that meat is the most universally-liked food.

While consumption of wheat flour in the United States has steadily diminished since 1939, the per capita *consumption of meat has risen*. In 1939 the average person ate 145 pounds of red meats and poultry combined. By 1952 the total had risen to 179 pounds.

But if you think Americans eat a great deal of meat, notice the figures for two other countries!

Before the Second World War, New Zealanders ate 321 pounds of meat per person and Argentineans, 300 pounds.

Values in Meat

Why this universal preference for meat? The value of meat has become increasingly apparent since the compo-

sition of different foods and their effects on human nutrition have been studied.

Being 75% water and 25% solid matter, meat has the peculiar property of being more concentrated after cooking due to the loss of moisture. A four-ounce serving of average beef contains as much protein as three glasses of milk. Slightly more protein is found in the same quantity of chicken, fish and lamb.

Of the variety meats only liver and heart are significantly higher in some food values than muscle meat. Heart and liver are both rich in iron and copper, and only liver is rich in vitamin A. Sweetbreads contain almost no vitamin B. Fowl and beef are about equal in vitamin value.

Lean meat is 18 to 20 per cent protein—*protein that contains ALL* the amino acids the body needs for growth

and repair. Tests have shown that the healthy body needs a new supply of *complete protein* every day because it does not store any excess protein that is eaten.

Two to three per cent of the lean is fat. If the meat is well marbled, the lean may contain up to 17 per cent fat. Only the prime cuts ever contain this much fat and by the methods used to cook these (broiling and frying), most of the fat is cooked out.

"Organic extractives" comprise from one to two per cent of meat. These *extractives* constitute most of the *characteristic flavor* of meat, and *stimulate the flow of digestive juices when eaten*. Extractives dissolve easily in water. Therefore, any liquid, other than fat, from the meat should be served with it as gravy or sauce.

Of the minerals, phosphorus and iron and copper are the principal ones found in meat. It is very deficient in calcium. Whenever meat containing bone is cooked in stews or soups, you can add vinegar, tomato juice or lemon juice to them before cooking. This dissolves some of the calcium from the bones and adds to the food value. The usual proportion is one tablespoon of vinegar or lemon juice to each quart of liquid used. If you use tomato juice, substitute it for part of the liquid, using as much as taste requires.

The vitamins found in meat are mostly of the B complex. Liver is very rich in vitamin A, and the liver and brains contain a little vitamin C. These two are not found in the muscle meats. The fact that meat is rich in B vitamins is another reason for serving the juice with the meat because these vitamins easily dissolve in water.

Meat Structure Affects Cooking

Different cooking methods are recommended for the various cuts of meat. Why is this?

The way meat is constructed determines to a great extent how it is to be cooked. Muscle meats consist of muscle tissue, connective tissue and fat.

The smallest unit is the muscle cell. It is liquid matter enclosed by a thin, tender sheath. A number of these are bound together by a heavier tissue called *connective tissue*. It is composed of smaller cells and is therefore tougher just as the closer grain of a hardwood tree is harder than the more open grain of softwood trees. This connective tissue is composed entirely of a protein, collagen, which becomes gelatin when it is put with water or with water and an acid, and heated.

When the animal is fattened, the fat is first deposited around the internal organs and then in the cells of the connective tissue. As the fat collects in the connective tissue, it stretches the cell wall, making it thinner. Consequently, **FAT MEAT IS MORE TENDER THAN LEAN.** The fat protects the meat from excessive drying during cooking, but *excess fat should be trimmed off before cooking.*

In a well-finished animal, some of the water in the muscles is replaced by fat. Meat from such an animal is firmer than that from a range-fed animal or from veal.

Meat of the most-used muscles of the animal is tougher because it contains more connective tissue. This tissue also increases in quantity as the animal ages. However, these meats contain more "extractives" which add the flavor that is especially desirable in stews, chili and soups.

Cooking Methods

One of the main purposes of cooking meat, then, is to break down this connective tissue—to *tenderize* it.

Cooking also improves the appearance of meat. Not very many people care to think of eating raw meat.

Another object is to develop flavor. Flavor includes aroma as well as taste. This is generally accomplished by *browning* the meat.

Cooking meat also sterilizes it, eliminating the possibility of any infection being contracted from it.

All methods for cooking meat come under two headings—*dry heat* and *moist heat*. Methods using dry heat are broiling (or grilling), frying, pan-broiling and roasting. *ONLY the most tender cuts are suitable for cooking by dry heat methods* because dry heat toughens meat by evaporating water from it. The fat in the *prime* cuts, however, reduces evaporation to some extent. Brushing the meat with oil or soft butter before cooking also prevents some evaporation.

MEATS SUITABLE FOR BROILING are prime cuts of Porterhouse, club, rib, tenderloin and top round steaks, and ground beef patties. *Broiling is not an appropriate method for cooking veal* because it is watery and has almost no fat.

Beef should be at least one inch thick for broiling. Thinner cuts dry out too much.

Pan-broiling has the same effect as broiling. The meat is put into a *hot*, ungreased skillet and turned frequently so that it does not burn. Any *fat* that cooks out is poured off as cooking proceeds, or the meat will be fried instead of broiled. No lid is used on the frying pan.

Since salt draws out moisture, meat cooked by dry heat is *salted after cooking.*

Frying is adaptable to thin steaks of the less tender cuts. A little oil is put into the pan. Cuts suitable for frying are good, commercial and utility grades of those listed above for broiling. To this you may add the *prime* cuts of bottom round steak, round steak, shoulder arm steak and chuck steak. The loin, sirloin and rib chops of veal are also suitable.

Larger cuts of meat are often **ROASTED**. The side of the meat to be turned up should have a layer of fat so that it will be self-basting. The meat is placed fat side up in a pan and baked uncovered. It should not be seared before roasting.

Tests have proven that meat roasted in a temperature no higher than 325° F. retains much more of its juices

than when a higher temperature is used. A temperature of 300° or even less is better. Another advantage is that less of the fat layer melts off to soak into the meat.

The fat layer is easily trimmed off after roasting. A small *roast* cooked at this temperature requires *about 30 minutes per pound* to cook well done.

If the roast has much exposed surface, such as a flat roast, it should be brushed with melted butter or oil. This reduces evaporation of the meat juices.

Prime grades of beef rump, chuck ribs, shoulder arm and heel of round are satisfactory for roasting; also chuck ribs and arms of veal. Prime, choice and good grades of *veal* loin, rump, leg and sirloin develop full flavor in *roasting*.

Moist Heat Cooking

Moist heat is practical for tougher meats because the meat can be cooked slowly for a longer time, giving the moisture time to gelatinize the connective tissue.

Marinating the meat in diluted acids or cooking meat in such acid liquids tenderizes tough cuts. Tomato juice, vinegar, sour cream, sour milk and lemon juice are acids used for this purpose. If meat is *marinated*, it should be sliced fairly thin. After the acid liquid is poured over the slices, set the meat in the refrigerator to soak at least 12 hours. It may be left as long as two days.

Stewing is a common way of cooking very tough meat. It is usually *covered with water and simmered*—NOT BOILED. Protein in meat hardens at boiling temperature just as the white of a boiled egg does. Either small or large pieces of meat can be stewed. The meat is not browned. Stew may be cooked as easily in the oven as top-of-stove. The pot should be covered.

Good to utility grades of the shoulder arm, rib ends, plate (breast), brisket and neck make fine stew meat.

For meat that is not quite so tough, *braising* is a flavorful method. The meat is first seared in a little oil, then covered and cooked slowly with a small amount of added liquid. The only object of searing is to brown the meat. It is done in a hot, though *not* smoking, skillet. A heavy pan is best. A large piece of meat cooked by braising is called a pot-roast; small pieces of meat braised are called a fricassée.

Commercial and utility grades of just about any cut will do for braising. *Braising is especially suitable for veal* because the browning develops flavor which veal naturally lacks. *Chicken* is also tasty cooked this way.

Pressure-cooking is desirable only for exceptionally tough meats or for use at

higher altitudes. The high temperature effectually breaks down connective tissue but correct timing must be carefully observed so that the protein is not toughened by over-cooking.

Searing meat harms *only* the protein in the browned surface, but the improvement in flavor makes it more appetizing and stimulating to digestion.

Liver is a problem because it usually contains a considerable amount of blood. If it is washed much, it loses an appreciable amount of its vitamins, particularly those of the B complex. Most of the blood can be eliminated by rinsing the liver once in barely warm water and cutting out the large tubes (blood vessels) with a kitchen scissors or a sharp pointed knife. Cutting out these mem-

branes and trimming off the outside skin makes liver more agreeable to eat.

Cooking Frozen Meats

Frozen meats can be thawed before cooking. There seems to be no consistent difference in flavor or juiciness. If it is thawed first, it should be left in the original package. At room temperature a pound of meat requires about 2 hours to thaw. In the refrigerator it thaws in about 5 hours. Unwrapped meat should not be thawed in water as the juices seep out and are lost in the water.

Frozen meats to be fried, such as chicken and fish, can be placed in a pan and quickly thawed enough in a warm oven so that the pieces can be broken

apart. If oven roasts are set to bake while completely frozen, they will require about 20 more minutes per pound of cooking time. Inch-thick frozen steaks and chops require about 8 minutes more; 1½-inch pieces about 15 minutes more than the regular cooking time.

Information about the different cuts and grades of meat can be obtained from the United States Department of Agriculture through writing your state representative in Congress or from some cook books.

There is not space here to discuss dressing and cooking chicken and fish. The most common ways of preparing these are by frying, broiling and baking or roasting. In general the same principles apply to them as to beef.

Eat Right to Be Healthy

Here are facts about health everyone should know.

by Isabell Hoeh

EVERYONE knows he needs food, but few know what foods are needed. Man has lived on a great variety of foods and survived. But because he survived does not mean that he enjoyed good health while he lived. Our goal is not merely to survive!

John wrote to Gaius that he wished that he would prosper and be in health (III John 2). Without health it is doubtful that prosperity would bring much joy.

Abundance Hasn't Brought Health

Abundance has been the key word in the history of our nation, yet national health is not ours. The scourges of heart disease, cancer, polio and other diseases are a constant threat. Certainly it is not because we do not have enough medicines or doctors. Indeed, people have to be sick before these are necessary. But doctors and medicines have not solved the problem and disease goes unconquered.

We need to look for the cause, the ounce of prevention that will keep us from becoming sick. And whatever the evidence demands, we should be willing to do it—or suffer the consequences.

Our forefathers died, but not from the diseases that are rampant today. They suffered from the infectious diseases. Rules of sanitation were often ignored or unknown, and their winter diet often did not include enough fresh vegetables. We practice these rules of sanitation today and eat more fresh vegetables. We are not plagued by pneu-

monia, diphtheria, smallpox and the like.

But the people of our nation are *dying* of what are called "*degenerative diseases*"—diseases which result from unhealthy changes within the body itself. Do we have any clues to what may be causing all this?

Clues in Refined Foods

The Industrial Revolution of the past century opened to man the potentials of mass production. Things from pots to plows could be made more cheaply and made available to more people than ever before.

The food industry today followed this same pattern. Now each little town no longer has its flour mill, nor are the vegetables and fruits provided by the gardens of the local area only. Food-stuffs produced in various areas are shipped to large central processing plants. From there they are sent to all parts of the nation.

But foods are not like machinery, furniture or clothing. They spoil, get weevily, become rancid or rot. If these were allowed to take their toll, it would mean much loss to the buyer and distributor. Methods of preservation have therefore been devised. Refrigeration, chemical and antibiotic treatment and refinement all help to prevent such loss.

But what is the effect of these treatments and this refinement on you and me, the consumers? Is the food as good for health as it was before all this

tampering? What do we find? Let's take, for instance, bread, the "staff of life."

The Staff of Life?

Bread made from wheat, rye or barley has been called "the staff of life" since time immemorial. And indeed *it was*. Any whole unrefined grain is a storehouse of many elements that have been found necessary to good health. The chief natural supply of the B-complex vitamins is in the seeds of plants.

But the "staff of life" is no longer what it used to be. Let's see why.

With the introduction in the late 1800's of the roller mill system for refining wheat it became possible to produce white flour cheaply on a large scale. People liked the appearance and the baking qualities of this flour. Millers and grocersmen liked the way it kept. Claims were deliberately made that the parts of the wheat which had been discarded had "no nutritive value" (*Encyclopedia Britannica*, Vol. X, eleventh edition) and were very likely even injurious to health.

Claims Disproven

Today we can charitably assign such claims to ignorance. The knowledge of nutrition that has developed since about 1900 has proved these claims to be false. Now we know that the outer coverings of grains and the germ—the very parts that were once said to be valueless and unnecessary—contain elements that are absolutely necessary for good health. These are the vitamins of

the B-complex, and minerals such as magnesium, potassium, copper, iron and calcium. Not only is it true that these parts of grain contain these elements, but it is also true that the *starchy white part does not*. Our bodies must have these vitamins and minerals in order to use the starch and protein of the grain for energy and for building cells and tissues.

Despite the evidence that the body needs everything in the grain, for years nothing was done to remedy this lack. In fact, another destructive process—bleaching—was devised to artificially age the flour and make it whiter than ever. Certainly no weevil could live in it.

Now it would have been harder than ever to re-introduce the bread of our great grandfathers. People were used to eating the white flour products and, besides, there was the investment in multitudinous machinery to think about. However, evidence that the average American diet lacked some things kept piling up.

Man's Remedy

Finally, in 1941 the government became concerned about the nation's health in connection with the war effort. A Committee on Food and Nutrition was established to determine what could be done to improve the nation's diet. They had to take into account what *people* would accept. If the parts of the wheat that contained these vitamins and minerals were left in the flour, people would not like it and they certainly could not risk any dissatisfaction, particularly during a war. Besides that, the flour would breed weevils and become rancid under the present set-up of large mills located in a few centralized areas. There would have to have been a radical change.

Having considered these angles, the Committee decided that people did not have to get all of these substances from *flour*. If they ate enough fruits, vegetables, milk and so forth, they should get enough of most of the vitamins and minerals.

Still the people failed to get enough vitamin B-1, B-2 (riboflavin), niacin and iron. If the millers would add just these four things, reasoned the Government Committee, everybody's needs should be taken care of.

Chemists had already learned how to manufacture these vitamins artificially, so it would be simple to add a certain amount of these artificial vitamins to the flour. These would not change its color nor cause spoilage. This seemed the solution to the problem.

Was This the Answer?

The question is, Does the average

person eat enough vegetables, milk, fruit and so forth to make up for what has been taken out of the flour and other grain products? Can one food make up for the deficiencies of another? Were the artificial vitamins of any lasting value?

Today, the lament that most Americans lack calcium is admitted in nearly every work about nutrition. Yet calcium was not put back into this flour.

Anemia is a frequent complaint among our population, especially pregnant women. Is the iron that is put into the flour doing any good? Iron will not help unless there is also copper present.

Where is the replacement for the copper that was milled out?

Constipation is a national ailment. Ads advocating this or that preparation to add "bulk" to the diet are seen in every magazine. These preparations would not be necessary if flour with the bran in it were being used.

The mineral magnesium, a natural antacid and nerve tonic, is also missing from the white flour. Perhaps that is one reason why so many complain of "acid stomach."

These facts become important when we realize how much denatured flour and cereal products are eaten every day.

What Some Authorities Admit

An American nutrition authority, Prof. Geo. R. Cowgill, said in 1953, twelve years after the inception of the flour and cereal enrichment program, "If the American people continue to use [refined] wheat and sugar in amounts currently consumed, one would have to consume tremendous and impossible quantities of the protective foods—milk, green vegetables, fruits—in order to secure the amount of Vitamin B-1 which has been lost in the past century as a result of refinement in the milling of wheat . . ." (Los Angeles Times, Wed., Nov. 25, 1953, Part III).

In the book *Foods for Life* published by the University of Chicago Press, Ralph W. Gerard gives examples of symptoms of vitamin deficiencies as "weakness, easy fatigability, constipation, loss of appetite, headache, disturbances of sleep, excessive irritability, depression, inability to concentrate, queer feelings in the fingers and toes, burning tongue, 'gas,' and many other odd bodily sensations. These symptoms are generally classified as nervousness, neurasthenia, or just plain imagination." How many of these symptoms have troubled you? Have you excused yourself by saying, "Well, I'm just the nervous type"? The truth is that your

diet hasn't been providing everything that you need!

This is not to say that these symptoms are always due to a deficiency, but the likelihood is great when the nature of our food supply is considered.

What You Can Do

We may as well admit it. There is no substitute for the original. The alternative is plain.

Instead of the impoverished white flour, begin using flours made of the whole grain for your baked goods. This we know is not always easy to do. Some towns do not have a store that sells it or if it does, it is a flour that was milled at some far distant point and was loaded with bromate and possibly other chemicals to keep it from breeding weevils before it got to you. If grain is grown at all in your locality, contact a farmer or a grain company who will sell you the whole uncontaminated grain. Then buy a small mill, either hand or electric, and *grind your own as you need it*. Make sure that the grain has not been treated for weevils or as seed for planting as these treatments are poisonous and dangerous.

Mills can be bought which adjust to make cereal as well as flour. Some of the mills which use a stone instead of a burr to do the grinding make finer flour than the commercial mills. This is what is probably referred to in the Bible as "fine flour" in Leviticus. The coarseness of the whole wheat flour which is sometimes found in stores is disappointing, especially to a beginner. The resulting baked products are so heavy that the housewife becomes discouraged with trying to cook with whole-grain products at all. She is apt to assume that all whole-grain flours are coarse. This is not the case. Attempts should be made to buy flours from various sources until satisfactory ones are found.

Certain magazines interested in health and gardening carry advertisements of farms and companies which sell good flour and other products by mail order. This is practical if the distance is not too great. Good flours and cereals can also be bought at so-called "health food" stores. These stores are found in many larger towns. While they may sell genuine health foods, they also usually have shelves of vitamin and mineral supplements which are NOT *health foods*. Most of these preparations are only parts of foods which have been mixed together according to the ideas of food faddists. These avoid. Spend your money for the foods which God made for man and not for what man has made for himself!

Now to answer many of the questions

we have been asked about the use of flours.

Kinds of Flour

Flour for making bread is made of hard wheat. This wheat has more protein and therefore makes a more elastic dough, which is what is needed when making bread with yeast.

For making cakes and pie crusts there is a special whole wheat flour called "whole wheat pastry flour." It is pale in color and softer textured because it has less protein and more starch. There is also an unbleached white flour which may be used for special purposes, such as for thickening sauces and for mixing *in small amounts* with the whole wheat flour when especially light bread or rolls are desired. No more than one-sixth of the total flour need be of the unbleached white flour. For example, if your recipe calls for 6 cups of flour, use 5 cups of whole wheat flour and 1 cup of the unbleached white flour. All white flour used to be unbleached and in some European countries it still is.

How to Use the Flours

Sometimes recipes direct that the whole wheat flour be measured without sifting. However, this method will give variable results because if the flour has become tightly packed more can be got into a cup than at times when it may not have packed so much. So always sift the flour, then measure it.

If you have whole wheat pastry flour, no changes in cake recipes need be made. But if you use the regular whole wheat flour, remove a tablespoonful of flour for each cupful that is called for, or you will have to add a little more milk or water.

If the whole wheat flour that you are buying is said to be especially high in protein, it will need more liquid in order to make a proper dough, or else

the amount of flour will need to be reduced somewhat.

Other Flours

Flour is also made from a number of other seeds. Soy flour made of the soybean is recommended, especially in diabetic diets. It contains much more calcium and protein and somewhat more of the B-vitamin complex than any other flour. But its protein is not in the form of gluten, the substance that makes bread dough elastic and strong enough to rise. Soy flour is therefore mixed with other flour to make bread. It is useful in increasing the food value of wheat bread. For this purpose, any amount up to one-fifth of the total amount of flour to be used may be of soy flour. Special breads made of soy flour have had wheat gluten flour added so that the dough will rise.

Buckwheat and rye flour are never refined though they may have preservatives added to them. This is not so of cornmeal. It is difficult to find cornmeal in grocery stores that is made of the whole corn kernel. It has been degerminated so that no matter how long it stands on the shelf, it will not become rancid. The germ of corn and of any cereal grain, for that matter, is high in oil, vitamin E, the B-vitamin complex and protein. So it will be worth your while, health-wise—and taste-wise, too—to find and buy cornmeal made of the whole kernel.

Breakfast Cereals Are Fooling the People

Many of you have heard Mr. Armstrong comment about the nutritional worthlessness of the prepared cereals that so many youngsters have learned to love. And it is true. The grains have been soaked, cooked, puffed and toasted to within an inch of their lives. Then synthetic vitamins, malt flavor and refined sugar have been added to the

pitiful product so that it will have taste appeal and a semblance of nutritive value. And you don't get all this processing for nothing. You pay for it. While wheat is \$1.65 a bushel, a bushel of wheat in the form of wheat flakes will cost you about \$22.00! That's a 1,360% mark-up! Corn is a similar case. Think of the cost per bushel in the form of *cornflakes!*

These figures may give a clue to the present high cost of living. Anything that you buy already prepared is going to cost you more money than if you bought the ingredients and made it yourself. Which do you have the most of—money or time?

And what of your *health?*

While cracked wheat and wheat meal cereals will cost more in the store than if you ground them at home, their cost will not be nearly that of the ready-to-eat cereals.

Other cereals you may like to try are steel-cut oats, rolled wheat, rolled oats and hulled millet. Have you tried cooked brown rice for breakfast? With raisins or chopped dates it is very appetizing. Avoid cream-of-wheat or anything similar. Hominy and hominy grits are both degerminated and consist of little more than starch. They should be used very seldom, if at all.

A Word of Caution

One word of caution about serving breakfast cereals: Don't smother the cereal that you serve your children under a layer of sugar! And for that matter, don't do it yourself. The children will learn to follow your example, whatever it is. They will enjoy cereal with nothing more than a little butter, honey, brown sugar or cream on it. Some have taught their children to eat their cereal without anything at all added and they like it. Heaping sugar on a dish of cereal is due to nothing more than habit, not a real need!

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