

the MISSING PIECE of the EQUATION

Without enzymes, your digestive system will never add up

If you're like most Americans, you probably regard digestive problems, such as heartburn and bloating, as inevitable as death or taxes. But common as they are, subjects like gas and diarrhea don't make the talk shows the way cheating spouses or loss of libido do. Let's face it: Tummy troubles are simply not sexy. And our silence means these potential health hazards often go undiagnosed and untreated.

Many of the approximately 90 million digestive problems experienced by Americans every year can be directly linked to poorly digested foods, says Lawrence Cheskin, M.D., director of the gastroenterology division at Johns Hopkins Bayview Medical Center in Baltimore. Chief among the complaints, Cheskin says, are heartburn, constipation, irritable bowel syndrome, gallstones and cancers of the gastrointestinal tract. It's serious stuff to be sure. Some 200,000 people will die this year of problems stemming from their digestive tracts, most notably colon cancer. These disorders will spur 60 million doctor office visits and cost \$120 billion in medical expenses and other repercussions like job disability leaves.

It can be difficult to gauge the prevalence of digestive problems because certain ones that are considered commonplace by alternative practitioners, such as toxic bowel syndrome (TBS),

aren't recognized by conventional physicians. Characterized by constipation, joint pains and fatigue, TBS can eventually impair the immune system's function. The condition is caused by chronically underdigested food that eventually creates a buildup in the colon, says Lucinda Messer, N.D., a naturopathic doctor practicing in Kirkland, Wa.

Poor digestion also can be responsible for a host of more subtle, yet deeply troubling problems, ranging from fatigue, skin rashes and headaches to poor concentration and irritability—symptoms most people wouldn't link to digestive issues. Because of the lack of awareness about both digestive disorders and treatment options (let alone the embarrassment factor) many of these problems are simply tolerated. "There is definitely an epidemic of mild, functional disturbances of the digestive system," confirms Michael Murray, N.D., co-author of *Textbook of Natural Medicine* (Churchill Livingstone, 1999).

Your digestive system is the key-stone to your health and vitality. And most of its everyday disruptions are preventable. While conventional doctors often provide basic (and sometimes outdated) dietary guidelines and treat digestive disturbances with drugs and surgery, alternative practitioners tend to focus on digestion as if your life depended on it, which it actually does. Their theories

sometimes differ, but most agree that the ability to fight illnesses, delay aging and experience positive moods and general well-being are inextricably tied to the process of breaking down foods and assimilating nutrients.

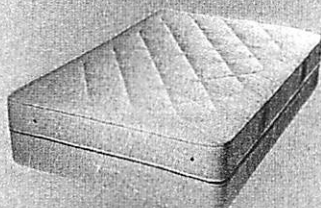
Some experts are frustrated that digestion isn't taken more seriously by health practitioners. "Digestion is the Rodney Dangerfield of the healing arts. It doesn't get any respect—it never has," says Howard Loomis, D.C., an authority in enzymatic therapy, an approach to improving digestion that relies on using enzymes. "Everyone assumes that digestion just normally happens, but it doesn't."

When your digestive system is compromised, even the healthiest diet can't be put to effective use by the body. At first, you may notice only mild symptoms like heartburn, but chronically depriving your body of nutrients over a period of time can cause more serious problems. An inability to absorb calcium, for instance, can eventually lead to osteoporosis. If the body isn't breaking down sugars properly, a yeast buildup up in the intestinal tract can lead to *candida*, which causes irritability and bloating. And common discomforts—constipation, diarrhea and gas—are often a sign that the body can't thoroughly process one of the basic substances contained in all foods: proteins, carbohydrates, fats and sugars.

by Robin Westen and Janet Webb • illustration by Kirk Caldwell

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takes place, with the help of pancreatic enzymes. Few nutrients remain by the time partially processed food reaches the large intestine, where unusable bulk or fiber is processed, water absorbed and waste excreted.

Vegetarian diets are typically more enzyme-rich than the average American's because they're likely to include salads and raw foods. But vegetarians are not immune to digestive problems. For one thing, not all raw foods are good sources of enzymes. Seeds, nuts, grains and beans must be soaked, cooked or sprouted to deactivate natural enzyme inhibitors, says Lita Lee, Ph.D., a chemist who practices enzyme therapy in Lowell, Ore., and Sunnyvale, Calif. Compounds in cruciferous vegetables (broccoli, cabbage, cauliflower) can also inhibit thyroid function if eaten raw.

Besides eating the right raw foods, you can enhance your diet with other enzyme-rich sources. Fermented dairy products like yogurt and particularly kefir, a drink made with milk-fermenting enzymes and yeasts, are enzyme storehouses. So are miso, tempeh and soy sauce. Enzyme therapists suggest including some raw food with each meal to enhance digestion. Snacking on yogurt or unpasteurized fruit juice in between meals also helps.

Enzyme Hazards

It's important to make sure your diet contains ample portions of enzymes because deficiencies can easily occur. As we age, many believe that the body's production of enzymes dwindles dramatically. For example, the amount of amylase present in an average 25-year-old's saliva is 30 times more abundant than in a 65-year-old's. This is why many people experience digestive woes for the first time in their 40s. "Around age 45, the quantity of our body's enzymes decreases and so does the quality," says Loomis, who also wrote *Enzymes: The Key to Health* (Grolee Publishing, 1999). "Our cells just don't have enough energy to maintain production."

To complicate the matter, a number of environmental factors can also destroy enzymes. Among them are pesticides and food heated above 118 degrees—a temperature lower than what's required to bake a casserole. Other zappers, Lee says, include water fluorida-

tion and food irradiation.

Because of these many hazards, enzyme therapists believe most people would benefit from taking multidigestive enzyme supplements containing a full range of enzymes. This is especially true, stresses Loomis, for people who eat a lot of cooked, processed or nonorganic foods that have been sprayed with pesticides. Vegetarians must be careful to avoid supplements derived from animal products, often listed as "pancrean" on the ingredients label. Vegetarian-safe supplements are called "plant-harvested," though Loomis believes some popular plant-derived supplements, like those made from papaya and pineapple, are ineffective. Bromelain, derived from pineapple, and papain, from papaya, work best in environments warmer than normal body temperature. Plant enzymes from aspergillus, a type of mushroom, create some of the highest-quality supplements because they do work at body temperature, says Loomis, who also founded 21st Century Nutrition, a Madison, Wis.-based company that produces enzyme supplements.

Bite by Bite

There's another school of thought that asks, in essence, Why bother taking supplements when you can get all the enzymes you need from your diet? David Wolfe is a teacher, author and vocal advocate for a small but growing movement that feels the key to optimal health and longevity is eating at least 80 percent raw foods. He says digestive enzymes start breaking down in temperatures above 104 degrees and are destroyed at 118 degrees. "The consequences of eating a predominantly cooked-foods diet are many, from enlargement of the pancreas [pancreatic hypertrophy] to allergies and toxic colon," says Wolfe, author of *The Sun Food Diet Success System* (Maul Brothers, 2000). Yet some experts say a diet of mostly raw foods may create different problems. Lee, the enzyme therapist, suggests taking the middle ground by incorporating more raw foods into your diet and eating enzyme-rich snacks.

As if the raw vs. cooked foods debate weren't confusing enough, there are other health practitioners who believe enzyme deficiency isn't even a valid

health concern in the first place. "Enzyme deficiency is an extremely rare condition—if it exists at all," asserts Steven Peikin, M.D., chairman of the gastroenterology department in New Jersey's Camden Hospital and author of *Gastro-Intestinal Health* (HarperCollins, 1999). "Our bodies possess a veritable powerhouse of enzymes, which will last until we're dead. In fact, the pancreas makes tenfold in excess of the enzymes we need," he says. Peikin's view is not unusual among conventional physicians. He does admit, however, that the body doesn't have the enzymes to digest some high-fiber foods like legumes.

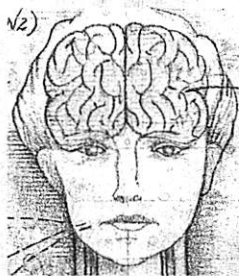
A Rising Star

Enzyme therapy is slowly gaining acceptance among the medical community. While still not universally embraced, it has moved in and out of the scientific spotlight in the past 100 years—as the recipient of both praise

and skepticism. Mavericks like Nicholas Gonzales, M.D., the New York immunologist who uses pancreatic enzyme therapy and dietary guidelines to treat cancer of the pancreas, are still considered controversial. But Gonzales recently received \$1.4 million from the National Institutes of Health to further research his method, and the patients whose lives he's saved consider him a godsend.

At the turn of the 20th century, Scottish physician and embryologist John Beard attracted attention when he injected purified enzyme juices into the veins and malignant tumors of cancer patients. In the United States during the 1960s, enzyme therapy created a minor flurry when Max Wolf, M.D., treated digestive disorders by having patients reduce animal fat intake, increase raw food consumption and take supplements. But Wolf was no fringe fanatic; his client list included a number of celebrities, like Pablo Picasso and

tuning up your digestion



Everyone agrees that a healthy digestive system can determine whether your body runs like a well-oiled machine or just gets by. Where people differ is in how they treat the problems. Conventional physicians tend to help less severe tummy troubles with pills and more serious disturbances with surgery. Alternative medicine practitioners have a number of effective natural remedies, though they often support their therapies with different theories. The variety of opinions is enough to make your head spin.

There's no doubt, however, that you can benefit from the advice of authoritative experts who have achieved impressive results with patients. What follows is a boiled-down list of tips to improve your digestive health, offered by a roster of experts that includes Trent Nichols, M.D., a gastroenterologist; Joseph Pizzorno, N.D., a naturopath and former president of Bastyr University in Kenmore, Wa.; Michael Murray, N.D., a naturopath and enzyme therapist; Howard Loomis, D.C., an enzyme therapy authority; and Lita Lee, Ph.D., a chemist and enzyme therapist.

- Chew thoroughly.
- Eat whole foods (organic, if possible) and try to avoid processed foods.
- Vary your diet as much as possible.
- Avoid frying or microwaving foods.
- Choose colorful foods, like carrots and bell peppers (they're enriched with carotenoids and flavonoids).
- Analyze your diet for its major component. If you're eating mostly complex carbohydrates, you could be taxing your body's ability to digest them. Aim for a diet composed of 50 percent complex carbohydrates, 30 percent proteins and 20 percent (of the healthy monounsaturated type) fats.
- Determine which foods you crave and which you avoid. Your cravings and aversions might signal problems with digesting certain foods.
- Consider taking a plant-based, multidigestive enzyme supplement with every meal.
- Include more raw foods with each meal and in between meals. —Janet Webb

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Enzyme therapy became more established among the American scientific community when Edward Howell, M.D., published his landmark book, *Enzyme Nutrition* (Avery, 1985). Today, there are more than 2,000 enzyme therapists in the United States, and the field is expanding every year. These practitioners come from varied medical disciplines: osteopathy, naturopathy, chiropractic and nutrition. And some conventional physicians are beginning to embrace enzyme therapy, says Trent Nichols, M.D., C.N.C., a gastroenterologist and nutritional counselor in Hanover, Pa. "There are a lot of physicians who have been out there for 10, 20 or 30 years who are just not getting results with conventional medicines and surgery," he says. "They're more willing to try something else."

R-E-L-I-E-F

Christine Dubiel, a 48-year-old interior designer living on New York's Long Island, had suffered from ear infections, high fevers, painful stomachaches, in-

cessant coughing and excruciating headaches since she was a child. As an adult, her health problems only worsened. "I had numbness in my face, multiple joint pains, fatigue and bouts with depression," she recalls. Dubiel made the rounds to countless medical experts—from conventional specialists to homeopaths—and spent thousands of dollars on treatments with pharmaceutical drugs, herbs and acupuncture. But nothing seemed to help.

One evening last year, Dubiel happened to hear chiropractor Paul Inselman, D.C., discussing on a local radio show how people with her very symptoms were being successfully treated for digestive disorders. She called Inselman's office the next day and made an appointment. Dubiel's first visit with Inselman included an extensive interview, a complete physical, dietary analysis and urine test to screen for digestive problems and nutrient and enzyme deficiencies. Inselman's diagnosis: Dubiel's body was unable to digest simple carbohydrates and fats due to an enzyme deficiency. That

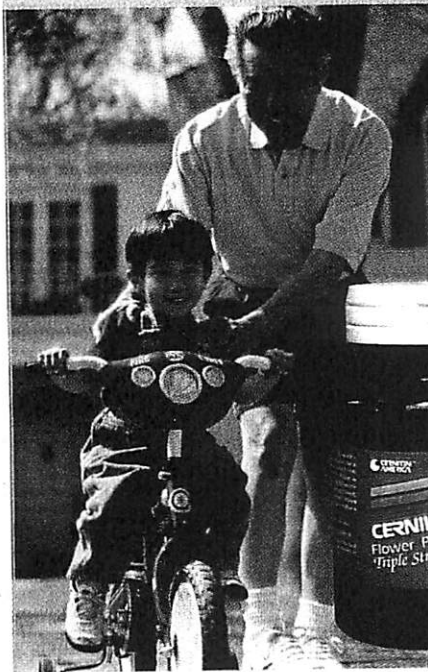
problem had led to a case of toxic bowel syndrome hindering her body's ability to absorb nutrients. "Since Christine was enzyme-deficient, her organs had to work on overdrive to function, which created a disruption of her body's homeostasis or balance," explains Inselman.

Inselman prescribed five plant-based enzyme supplements to aid Dubiel's digestion. He also put her on a low-carbohydrate, high-protein diet because she wasn't eating enough proteins. Six months later Dubiel's condition had improved significantly. The first thing she noticed was an increase in energy. "I went through the winter with only a mild cold—a first for me."

Enzymes, East and West

Practitioners from Eastern traditions concur with their Western peers that enzymes are an important part of the digestive equation. All agree that a healthy digestive system can prevent illnesses and increase vitality. And because enzyme therapy is just one way to improve your digestive health, ultimately the best

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approach is finding out what works best for you.

Digestion is considered the root of most diseases in traditional Chinese medicine (TCM) and Ayurveda, the classical Indian medical system. But these practitioners depart from enzyme therapists when it comes to raw foods.

TCM, for instance, tries to oppose the elements, recommending "warming" foods in winter and "cooling" foods for summer. "Over time, eating too many raw foods can deplete spleen energy, which is what pulls nutrients and *chi* [life force] out of food," says Higgy Lerner, R.N., L.Ac., an acupuncturist and Chinese herbalist in Chico, Calif. But Lerner believes enzymes can energize the digestive system by removing stagnation so *chi* circulates freely.


Ayurvedic doctors also believe healthy enzyme function is critical for digestive health. But they believe digestion is controlled by another force, *agni*, (or "fire") in Sanskrit. In Ayurveda, all matter is composed of five elements: fire, water, earth, air and ether. *Agni*, the elemental force or

"central intelligence controller" of digestion, has no Western equivalent, says Sunil Joshi, M.D., an Ayurvedic physician practicing in Albuquerque, N.M. "It's the software in the computer that makes it work," he says, adding that enzymes are controlled by *agni*. "If *agni* is not functioning properly, enzymes will not be produced and your pancreas will be overworked."

For a healthy *agni*, Ayurvedic doctors recommend spices that stoke this digestive fire, such as coriander, turmeric, toasted fennel and *asafetida*. Raw foods often have the opposite effect on *agni*, says Joshi, who recommends a diet of at least 60 to 70 percent cooked foods. But his actual recommendations vary according to individual constitutions.

Observing how your body reacts to different components in the diet is the key to fine-tuning the digestive system, other alternative practitioners say. "There's no question that enzyme therapy can improve digestion," says Joseph Pizzorno, N.D., the former president of Bastyr University in Ken-

more, Wash. "But people should try for themselves and see what produces the best results for them." (For a step-by-step guide, see "Tuning Up Your Digestion," p. 97.) Pizzorno also explains that enzyme therapy is good protection against increasing amounts of chemicals in the food supply.

Michael Murray says most Americans need to make fundamental changes to their diets before they'll get relief from digestive problems. It's easier to notice how your body responds when you're working with a relatively clean slate, he says. From that point, you can experiment on yourself to see, for instance, how your system responds to adding more raw or fermented foods to your diet. Even though digestive problems have become as common as the cold, they're mostly in your power to prevent. 

ROBIN WESTEN, a freelance writer living in Vermont, writes about health and wellness for publications like *Self* and *Glamour*. Janet Webb is a senior editor of *Vegetarian Times*.

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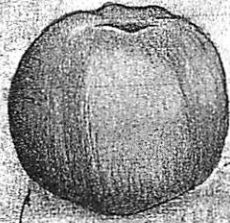


Fig. 2
APPLE

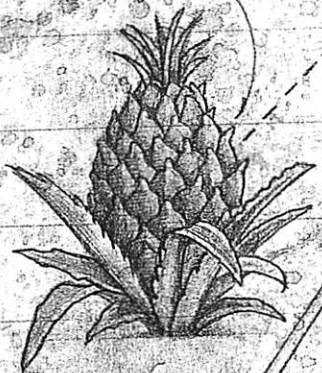


Fig. 3
PINEAPPLE

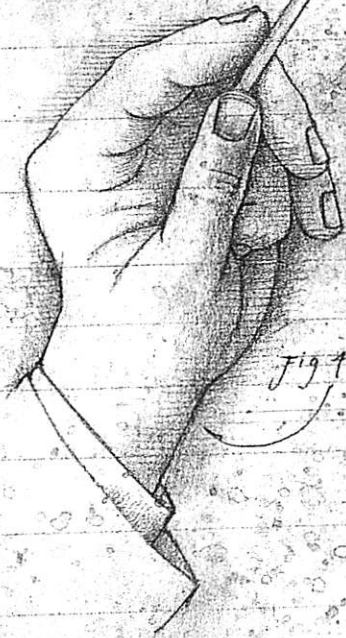


Fig. 4



Fig. 5
MUSHROOMS

ENZYMES

ENZYMES

ENZYMES

PANCREAS
ENZYMES

SMALL
INTESTINE

BRAIN

STOMACH

LARGE
INTESTINE

Fig. 1
HUMAN
BODY

