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Waiting for an Ally


Dr. David G. Williams

For individuals who are overweight—and that's two-thirds of Americans these days—acknowledgment of their weight is an important first step in getting the problem under control. It's not like these folks don't know that they could stand to lose anywhere from 25 to 250 pounds, but the rationalizations seem to keep coming. "I'm fat but fit." "I've always been heavy." "I'm healthy otherwise." "It's genetic." "It's my thyroid."

The truth is, if you're overweight, you're not healthy. The damage is occurring even though you may not be aware of it. For example, carrying around more weight puts extra strain on your ankles, knees, and hips, slowly wearing away the cartilage. You may not feel the result until you're practically bone-on-bone and looking at joint replacement surgery, wondering, "How did I get here?"

Extra body bulk also requires more blood vessels to feed that tissue—estimates range from half a mile to 20 miles of added capillaries for each pound of body fat. Obviously, your heart needs to work harder to pump blood through all those added capillaries. This extra work results in strain on the heart muscle. As the heart works harder to push blood through those capillaries, you experience higher blood pressure in the arteries and arterioles—which helps explain why weight loss is such a dramatically effective treatment for high blood pressure.

The list of conditions created or made worse by excess weight is practically endless, and ranges from the inconvenient to the deadly. Aching feet, sleep difficulty, longer stays in hospitals, gallstones, trouble breathing, infertility, stroke, cancer, and even loss of brain volume are all consequences of too much fat.

To make matters more confusing, some conditions have a chicken-and-egg relationship with weight. Take diabetes, for example, which has weight-related components. Diabetes arises when the body becomes inefficient at moving glucose from the bloodstream into cells, where it's used for energy. As cells become starved, and as blood levels of glucose rise, the pancreas pumps out more insulin. The problem isn't that there's too little insulin, however; it's that the cells are resistant to insulin's message.

Does insulin resistance lead to weight gain, or does added weight lead to insulin resistance? The answer is almost surely, "Yes." That is, both are true, which means that you have two points at which you can enter the dangerous spiral that ends up in full-blown diabetes.

Weight gain after middle age appears to be particularly damaging. In a recent Italian study, researchers examined the health records of 2,190 individuals age 65 or older. The study looked at the participants' weight at age 50 and again at the time of the research. No matter what their weight was to begin with, those who had gained more than 5 percent in body weight over the intervening years were at increased risk for disability (impairment in at least one activity of daily living, such as bathing, walking, or driving). (*J Am Geriatr Soc 09;57:1015–1021*)

Regrettably, there's a movement afoot that's trying to increase acceptance of excess weight. I understand their motives. People who are overweight aren't morally worse than others. They aren't inherently unattractive. They aren't lazy, or any of the other negative terms and

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You will observe with concern how long a useful truth may be known, and exist, before it is generally received and practiced on. — Benjamin Franklin

opinions that have been thrown around. They're just... unhealthy. And any attempts to confuse the psychological with the physical are, in the end, self-destructive. There's no need for overweight people to have low self-esteem, but the facts are there: The more weight you carry around, the higher your health risks. Feeling good about yourself won't save you from heart disease or a knee replacement. Losing weight will.

Labels Don't Help

Doctors love labels, because applying a label to a patient makes it easy to recommend a specific course of treatment. As late as the mid-1980s, doctors were complaining in print that they had no reliable standard for assessing overweight individuals. The original guidelines were a set of tables developed by the Metropolitan Life Insurance Company. Insurance companies have a financial interest in people's health, so it's important for them to know who is at higher risk of disability or early death. The tables were first introduced in 1959, and updated in 1983 to reflect a slightly higher "healthy" weight for a given height. As soon as the revised tables came out, critics were claiming that the older, lower weight was a more accurate reflection of health status.

At about the same time that the tables were revised, the concept of body mass index (BMI) arose. This is a straightforward calculation based on a person's height and weight. Finally, physicians had a convenient measurement to use on patients. (Using the tables required calculating a person's variance from the "ideal" weight.) An individual with a BMI of less than 18.5 is considered "underweight"; between 18.5 and 24.9 is considered healthy; 25 to 29.9 is "overweight"; 30 to 39.9 is "obese"; and 40 or more is "extremely obese."

Unfortunately, "convenient" doesn't necessarily equal "accurate." Certainly, not all weight is the same. A bodybuilder may weigh the same as his couch-potato brother, but they'll obviously have different health risk profiles.

BMI does have some value as an assessment tool, and for keeping track of progress, but on its own it isn't enough to truly measure health risks. As I've mentioned before, body shape is another indicator of risk. An apple-shaped body, with the extra weight carried around the middle, creates more risk than a pear-shaped one, with extra weight on the hips and thighs.

No matter what your BMI or body shape, *any* added weight is unhealthy, as body changes can still occur within each range. Korean researchers studied a group of 4,246 men. At the beginning of the study, all were considered to be of healthy weight (BMI from 18.5 to 22.9) and had no fatty liver disease. At the five-year followup, 622 had developed fatty liver disease. A weight gain of just five pounds over the study period increased the risk significantly. (*Gut 09 Jun 7. [E-pub ahead of print]*)

The Sins of the Fathers (and Mothers)

It's no secret that overweight children have a greater tendency to become overweight adults, and that extra weight is a significant risk factor for diabetes. It's also becoming more and more clear that the children of diabetic parents are at higher risk for several disorders associated with insulin usage and fat metabolism. The current generation of overweight, diabetic adults is breeding a younger generation that's already starting life with two strikes against them.

Researchers with the Department of Physiology at the University of Lausanne in Switzerland investigated the effects of a high-fructose diet on the children of diabetic parents (CDP). In a small study, 24 healthy young men ate a regular diet, then switched to one that added 35 percent more calories from fructose. In the study, 16 participants were CDPs; the rest (the control group) were children of healthy parents. The CDP participants began the study with higher levels of serum triglycerides and lower insulin sensitivity. The high-fructose diet decreased insulin sensitivity by around 5 percent in both groups. Blood levels of triglycerides increased by 50 percent in the control group and 110 percent in the CDP group.

As bad as the triglyceride numbers are, there's worse news. In both groups, deposits of fat in the liver increased

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by more than 75 percent: 76 percent in the children of healthy parents, and 79 percent in the CDP group. (*Am J Clin Nutr 09;89:1760–1765*)

It's important here to distinguish between "fat accumulation" and "fatty deposits." It's perfectly normal for the body's cells to accumulate fat as triglycerides; the fat is used as a reserve source of energy. It's possible to get too much of a good thing, of course. Cells that are overstuffed with triglycerides begin to function poorly.

When fat gets deposited between cells, however, the works really get gummed up. I've written in the past about fatty liver disease, and the way in which the liver can experience so much damage before any disease is discovered. [*Editor's note: For solutions to fatty liver disease, including how to reverse it, see the October 2007 issue of* Alternatives *in the Subscriber Center of the* Alternatives *Web site,* www.drdavidwilliams.com.]

Keep in mind that all these young men were considered healthy. The researchers likely expected to see the fat problem in the CDP group, because of the risk for increased insulin resistance. The results in the children of healthy parents must have been somewhat of a shock.

Get Your Fructose From Fruit

The leading sources of fructose in the American diet is the product known as high-fructose corn syrup (HFCS). It's found in pretty much every type of prepared food, from baked goods to ketchup—and especially in sodas.

If you've been reading *Alternatives* for any length of time, you already know how I feel about HFCS: Fructose in its natural state (as found in fruit) is perfectly healthy, but once it's concentrated in HFCS, it's pretty much just poison in disguise. Overconsumption leads to an increase in appetite, weight gain, adrenal overload, and an increase in your risk for heart disease and esophageal cancer. [*Editor's note: For full details on the perils of overconsuming HFCS, see "More* Alternatives" *in the Subscriber Center of the* Alternatives *Web site,* www.drdavidwilliams.com.]

Consumption of fructose has been rising steadily, both in absolute terms and as a proportion of total calorie intake. A 1977 survey reported that average daily consumption of fructose was roughly 37 grams per person per day, or about 8 percent of total calorie intake. More recent results show increases to 54.7 grams per day, about 10 percent of total calorie intake. And the situation is even worse in teenagers, as you might imagine. For that group, fructose intake *averaged* 72.8 grams (18 spoonfuls), more than 12 percent of their total calories for the day. (*Medscape J Med 08;10:160*)

As a side note, these numbers reflect an increase in total calorie consumption from an average of 1,850 calories per day to 2,150 per day. That average includes everyone: young and old, linebackers and infants. This statistic alone goes a long way toward explaining how we've gotten so large as a society.

In the Swiss study above, the high-fructose diet added about 200 grams of fructose daily. (The exact amount varied based on the individual's weight and lean body mass.) That's the equivalent of about ten 12-oz. sodas. While that might seem like a ridiculous amount of soda (and I agree, it is), consider that the standard soda bottle these days is 20 ounces, and the "Super Drink" size available from various fast food places is 64 ounces.

If you feel like you really need a soda every now and then, look for Coke that's bottled in Mexico, or American-made Coke that's kosher for Passover. Both are made with cane sugar instead of HFCS. And other soda bottlers are beginning to offer "retro" versions of their drinks, replacing the HFCS with sugar.

Know Your Place

Getting back to the topic of excess weight, different locations and types of body fat can create different health effects. I've written before about how the accumulation of fat among the internal organs increases your risk for diabetes and heart disease. This "visceral fat" is so dangerous because the veins from your abdominal organs drain directly into the liver.

The liver has a unique system for blood circulation. It receives arterial blood, of course, from a branch directly off the aorta. Roughly three-quarters of the blood entering the liver, however, comes from the portal vein—blood leaves your spleen, pancreas, and large and small intestine and travels directly to the liver. Arterial and venous blood come together shortly after entering the liver. Instead of relying on capillaries to distribute nutrients and collect wastes, the liver contains structures known as *sinusoids* that are lined with a very loose collection of epithelial cells. As blood passes through the sinusoids, various substances such as enzymes act on the materials passing by. Glucose gets collected and turned into glycogen for energy storage. Toxins get drawn out through the epithelial cell layer into the bile for later excretion. Cholesterol molecules of various types are taken in for conversion to glycogen.

One substance the liver has particular trouble handling is free fatty acids—exactly what gets pushed through from any excess fat that has accumulated in and around the abdominal organs. The fatty acid molecules are small enough that they can pass directly between

the epithelial cells lining the sinusoids, and make their way into the intracellular spaces in the rest of the liver. The standard for a diagnosis of fatty liver disease is more than 5 percent of the total liver weight consisting of intracellular fat, but there's evidence that even amounts significantly lower than that level can begin inducing changes in the way the liver metabolizes fat and glucose. (*J Clin Endocrinol Metab 02;87:3019–3022*)

In separate studies, researchers with the Catholic University of Rome in Italy and Hôpital Louis Mourier in Paris, France, have found that individuals with fatty liver disease are also more likely to have an overgrowth of unhealthy bacteria in their small intestine. The connection appears to be that the poor bacterial balance leads to greater intestinal permeability, meaning that undigested food is making its way into the bloodstream through the gut wall. (*Obes Surg 08;18:371–377*) (*Hepatology 09;49:1877–1887*)

As you know, I'm a big believer in the benefits of probiotics, whether from supplements or from fermented foods. This connection between bowel health and liver health just strengthens my conviction. [*Editor's note: For more about fermented foods, see the reader question on page 7.*]

Know Your Fat

When it comes to types of body fat, there are two varieties of the fat cells known as adipocytes. One type, called "white fat," is simply a storage depot. The fat inside this type of cell consists of a single large droplet. While these cells also take in glucose, and can transform it into fats, they prefer to take in fat directly, because little energy is required for absorption and storage. White fat cells can't take in additional fat indefinitely; when they have been packed to about four times their original size, they divide, to create more storage capacity.

As if all this weren't confusing enough, there are two types of white fat cells: the kind that are found under the skin in areas like the hips and thighs, and the kind that accumulate inside the abdominal cavity. The ones under the skin appear to be less harmful to your health, because they're the least active metabolically. Unfortunately, that also means that they're the hardest to get rid of as you lose weight. The "love handles" or "saddlebags" will still be with you as you drop weight and become healthier, but they eventually will disappear with continued weight loss. The white fat cells in your abdominal cavity make up the visceral fat. They are more active metabolically, which makes them more dangerous when present but also easier to get rid of.

The other type of fat is known as "brown fat." These cells hold their fat in much smaller droplets, for ready conversion to energy. In addition, these cells contain more mitochondria (the bodies within a cell that generate energy) than most other types of cells. In fact, it's the mitochondria that make the cell look brown.

Brown fat cells help regulate heat in the body of warm-blooded animals. As the body temperature falls below a certain point, they begin converting their fat into glucose and fatty acids, both of which can be burned for heat. If this process, called thermogenesis, isn't enough to bring body temperature back to the comfort range, then shivering kicks in, where the muscles become active and burn their glucose to generate even more heat.

Infants are born with a pad of brown fat across their upper back and shoulders. Their muscles aren't developed enough yet to produce shivering, so they rely on this pad to generate additional body heat when needed. It used to be believed that the brown fat disappeared with age, but we now know that adults retain significant stores of brown fat throughout the body. Fortunately, the body appears to conserve brown fat as weight drops. The loss comes mostly from white fat—a combination of some cells disappearing and others decreasing in size by burning a portion of their contents.

Getting to the Solution

The path to excess weight is very plain: More energy goes into the body (as calories from food) than leaves (calories burned). The path to weight loss is just as plain: More energy goes out than comes in.

Traveling the path to weight gain is also easy: some extra soda or chicken Parmigiana here, a Saturday afternoon in front of the television there, and before you know it 50 new pounds are looking back at you in the mirror.

If only traveling the path to weight loss were so easy. Lasting weight loss requires a change of the habits that led to the weight gain—and there's nothing easy about changing long-time habits. I know several folks who have lost significant amounts of weight and kept it off for years, and I have great respect for their determination.

Goodness knows, people try to find "easy" ways to lose weight. They're always searching for the "magic bullet" that will make the pounds just melt away. I'm sorry to be the one bearing the bad news, but there is no magic bullet for weight loss. Instead, you have to decide that you're going to lose weight, make a plan, and stick to it.

Every part of your plan has to address one of the sides of the equation, either decreasing the calories you take in or increasing the calories you burn. And, while there might not be any magic bullets for weight loss, there are two magic words: "diet," and "exercise."

HEALTH HINTS FROM READERS

Knee Pain Relief in the Kitchen

I am a long-time subscriber to *Alternatives* and have benefited greatly from the newsletter.

I just received my May 2009 issue today and read it front-to-back as soon as it arrived.

I was very interested to see one subscriber's problem of knee pain and wanted to suggest an additional possible remedy.

My husband had arthroscopic knee surgery twice and had continuing knee pain, and his doctor recommended a third go at the surgery. My husband wasn't thrilled with that idea but had tried chondroitin sulfate, glucosamine sulfate, and MSM. Those helped somewhat, but nothing gave relief over the long term.

I read that some people were helped by avoiding nightshades (tomato, potato, eggplant, peppers, as well as nicotine). He was willing to give it a try. After several weeks the pain was gone—really gone. I no longer use those in my cooking, but he can always tell if he has inadvertantly eaten some when we eat out or eat at friends' homes. Even paprika or chili powder added to a casserole, soup, or other dish will cause him pain by the next day. Apparently, alkaloids in those plants cause inflammation in some people (but not all people).

It has been several years since his doctor recommended the surgery and he has not had it, nor does he plan to. He is just fine as long as he stays away from nightshades (not always an easy task—but well worth it to avoid pain and surgery). Not everyone is helped with this technique, but many are. It is my understanding that this works for both rheumatoid and osteoarthritis in those sensitive to nightshades.

Thanks so much for your newsletter—it is one of the few subscriptions that I will not let expire.

Cheryl Halton
Via e-mail

The Wrong Approach to Food

The number-one stumbling block facing people who want to lose weight is that they confuse *a diet* with *their diet*. "Going on a diet" implies that one is cutting calories for a while, then once the goal is achieved (losing 20 pounds for a 40th high school reunion, for example) going back to the old routine. But the old routine will lead to the same old results—higher weight.

Whether the diet is low in carbs or high in submarine sandwiches, whether it comes from South Beach or Scarsdale, they all have one thing in common—*they don't work* for most people. Diets fail because they aren't sustainable in the long run.

I recently ran across an online review of fad diets. The writer listed her 10 favorites, and claimed, "I lost weight on all of them!" I'm sure she did. She even listed her results: four pounds in a week here, three pounds in three days there. I'd bet, though, that at the end she weighed just about as much as she did at the beginning. Her need to try so many indicates that none of them produced long-term results for her. The short-term results more than likely came from the loss of water weight. Most "quick-results" diets involve some component that brings about this type of quick weight loss, so participants can see results right away.

Dieting also turns out to be an ineffective strategy for lasting weight loss. Getting back to the calories in–calories out equation, your body burns a certain number of calories by the very processes of life. It take calories to move your diaphragm and chest muscles when you breathe, to hold your body in position, and to generate body heat. The amount of energy you use in these processes is known as your basal metabolic rate, or BMR.

An individual's BMR tends to decrease with age, which partly explains the slow creep of pounds with advancing years. Your BMR can also adapt to current circumstances. A diet that's extremely low in calories, for example, makes your body think it's being starved, so it reduces its BMR. The drop happens very quickly, within the first day or so of a significant drop in calories.

Once you increase your intake of calories, your BMR increases as well—but it can take up to 10 days to move up. As a result, you're putting more weight back on, just at the point where you'd want to "lock in" the results of your just-completed diet. There's also a controversial "set point" theory, which states that your BMR never returns quite to the high point it was at before—perhaps in anticipation of another coming famine. As a result, every time you cycle through yet another diet, your peak BMR, or set point, gets lower and lower, sabotaging any future efforts to lose weight.

(I found it interesting that, even at a higher intake of calories, people generally don't go on gaining weight forever. Instead, they reach what's called a "settling point" [not the same as the "set point" I just mentioned]. Weight gain is a result of taking in more energy than you're expending, as I said above. But a larger body size

requires more energy to move about, and the extra bulk uses energy on its own. Eventually, the body gets large enough that, on its own, it's using up the extra calories.)

Instead, the solution is to change your everyday diet in ways that you can live with. And that means adjusting both what you eat and how much of it you eat.

As I've written before, weight loss comes from a diet and lifestyle you can live with. Cut back on sweets, refined sugar, and other simple carbs such as white bread and pasta, and replace those foods with vegetables and fruit. Eat fewer prepared foods, and more raw food. If you have a juicer, dust it off and use it. As nutrition pioneer Adelle Davis recommended, "Eat breakfast like a king, lunch like a prince, and dinner like a pauper."

I do want to say, though, that there are very few absolutes—that is, foods that must be eaten to produce weight loss, or that may not be eaten. Almost any food or drink is fine when consumed in moderation. The concept of "moderation" seems to have escaped most people these days, however. An evening at the pizza parlor with friends is fine once in a while, but calling out for pizza two or three nights a week is a sure path to extra weight.

Taking Active Steps Toward Health

Earlier I said that one of the magic words for weight loss is "exercise." I do want you to be aware, though, that practically anything counts as exercise if you do it intensely enough for long enough. Walking, swimming, and cycling count, but so do yardwork and dancing. If you'd prefer, you can think of it as "activity" instead.

Exercise not only burns calories, it also builds muscle tissue. And muscle tissue is more metabolically active than any other type of tissue, so it raises your BMR. The benefit from any one session of exercise isn't necessarily that great, but increasing your activity over time produces benefits that last. One study performed at the University of Pittsburgh showed that women who exercised more than 275 minutes a week (less than 5 hours) were more successful at long-term maintenance of a weight loss of more than 10 percent of their body weight than women who exercised less than that amount. (*Arch Intern Med 08;168:1550–1559*)

In the Pittsburgh research, the women were divided into four groups. Each was given an exercise program of either moderate or vigorous activity, and either high (2,000 calories a week) or low (1,000 calories a week) total energy expenditure. The results showed that it's not necessary to hit the gym five days a week. (Of course, the women were also on a reduced-calorie diet. Still, the exercise makes a difference.)

Moderate-intensity exercise is the equivalent of walking at about 100 steps a minute. If that gets you slightly out of breath, then other activities should get you to feeling about the same way, whether you're swimming or trimming hedges.

Ideally, your exercise program will consist of both aerobic and resistance activities. As you become more aerobically fit, your capacity for activity of all kinds will increase. You'll find that it's easier to cross the parking lot from your car into church, for example. And resistance activity builds muscle directly.

Supporting Your Efforts

Over the years, various substances have been touted as being the real magic bullet, bringing on weight loss with little or no effort required on the part of the user. One of the most notorious was amphetamine, or "speed." Sold under various names, it actually was quite effective, because it worked on both sides of the weight equation: It increased BMR, and it suppressed appetite, so people ate less. Unfortunately, amphetamine also increases the risk of heart damage, interferes with sleep, and is addictive.

Then about 20 years ago, the "fen-phen" drug combination became popular. This regimen consisted of fenfluramine (a drug related to the SSRI antidepressants, but one which oddly enough has a depressing effect) and phentermine (a stimulant related to amphetamine). This pairing of an "upper" with a "downer" seemed to produce steady, reliable weight loss in patients, even those who had had difficulty losing weight in the past.

Unfortunately, fen-phen carried its own set of side effects: heart valve problems, and an irreversible condition called primary pulmonary hypertension, in which fluid builds up in the lungs and causes difficulty breathing.

The latest drug to be put forward as the answer to weight loss is orlistat, sold by prescription as Xenical and over the counter as allī. (The only difference is dosage; Xenical is 120 mg three times daily and allī is 60 mg three times daily.) Orlistat works by blocking an enzyme called lipase that digests fat in the small intestine.

The theory is that, by blocking the digestion and absorption of fat, the user will reduce the amount of calories that they'll take in from a given meal. Critics have commented on the fact that, by blocking the absorption of fat, you're also blocking the absorption of fat-soluble vitamins such as A, D, and E. The most ironic side effect hasn't received much publicity, however.

Your body relies on internal signals to regulate practically every process. For example, an increased level of carbon dioxide in your blood triggers an automatic

Elderberry for Every Flu

Question: Based on your newsletter, I have recommended elderberry to many of my clients for treating viral infections, and they have been very happy with the results.

However, with H1N1 flu, there may be a potential for a major problem. I understand that Sambucol increases cytokine production. H1N1 is thought to kill in part by creating a "cytokine storm." [*Editor's note: This is a situation in which the body's attempts to overcome an infection create their own problem, resulting in respiratory failure.*]

As a result, Sambucol may make H1N1 flu worse, even though it is very effective for ordinary flu. Please check into this. Most of your readers would naturally use Sambucol for H1N1 flu, and I would have myself, had I not noted the possible interaction.

Dr. J.W.
Highland Falls, NY

Answer: Based on my research with other influenza strains, I believe that elderberry probably acts more as a regulator than as a strong stimulant of the immune system. From what I can determine, it increases both inflammatory and anti-inflammatory cytokines. It's my understanding that elderberry also works to directly inactivate the virus.

I'd still sugggest that you take elderberry extract at the first sign of flu. By the time you get tested to see exactly which variety your particular virus is, it'll be past the 72-hour period when elderberry is most effective.

Fermenting the Right Foods

Question: Thanks for the information about homemade yogurt. I love the idea of fresh, homemade yogurt, but I'm allergic to dairy. I find I am somewhat able to handle goat milk, and wonder if I can make yogurt with goat milk without the intestinal disturbances I get with cow's milk. And if not goat milk, how about soy milk?

Pat Thurston
Via e-mail

Answer: This is an interesting question, one that several readers have asked in just the last couple weeks. I've read and studied about everything I can find on fermented products for years, and when it comes to yogurt it always involves animal milk of some kind: cows, goats, or even sheep.

First of all, the beneficial bacteria digest sugars in the milk and produce lactic acid, which coagulates certain proteins present in the milk. Plant products don't contain the same types of proteins, so even if you could get soy or rice milk to ferment the result would likely be very thin and runny. Beyond that, I would be somewhat hesitant about trying to ferment something that didn't have some history behind it. Some items just sour or rot, depending on the organisms present. And you might be setting yourself up for food poisoning, which could obviously present a serious problem.

If you find that you really can't handle dairy from cows, goats, or other animals, you do have alternatives. As you know, I also like and recommend sauerkraut and pickled vegetables (and beer, of course) as sources of beneficial bacteria. Homemade varieties of all these are the most effective for maintaining healthy gut flora, because their bacteria are likely to still be alive when you consume the food. [*Editor's note: Recipes for making your own fermented foods can be found in the Subscriber Center of the* Alternatives *Web site,* www.drdavidwilliams.com.]

When buying prepared fermented foods, look for products that have not been pasteurized. (After all, the whole point of pasteurization is to kill any bacteria present.) Unpasteurized sauerkraut can be found in the refrigerated case of your local grocery. And most domestic draft beer is not pasteurized. The kegs are shipped and stored at temperatures below 38 degrees F, and the bacteria and yeast are inactive at those cold temperatures. Imports need to be pasteurized, because they aren't kept cold during transportation.

breathing response, to exchange that carbon dioxide for fresh oxygen from the lungs. The digestion of fat in the small intestine sets off the release of compounds that signal fullness, known as *satiety*, and so regulate appetite. When orlistat blocks fat digestion, it also blocks the signals that tell you when you've had enough to eat. According to the authors of one study, "the increase in energy intake approximates the energy lost due to fat malabsorption." In other words, the drug did what it was supposed to do (block fat digestion), but the side effect completely undid any benefit. (*Br J Nutr 03;90:849–852*)

Getting the Right Support

Given the poor record that prescription drugs have when it comes to weight loss, understandably many individuals have turned to nutritional supplements as an ally in their efforts. Herbs such as ephedra and guarana work on the rate at which the body burns energy. (By the way, ephedra is highly effective at promoting weight loss, and it's perfectly safe when used in moderation—there's that word again. Its removal from the market after the highly publicized death of a sports personality was a political response that had nothing to do with science or rational thought.)

Other herbs such as hoodia suppress the appetite. My biggest concern with appetite suppressants is that individuals tend to rely on them for too long. Certainly reducing the amount of food one eats is an essential component of any weight-loss program, but only a change of habits results in long-term success. Appetite suppressants such as hoodia, or even the pine nut oil I wrote about a couple years ago, are useful for helping you get used to eating less food, but in the long run you need to be able to handle hunger signals appropriately without the crutch. (And, by the way, many people confuse thirst signals with those for hunger. Often a glass of water will be just as fulfilling as a handful of chips.)

The supplements I've found to be most effective for weight loss are ones that support your body's normal mechanisms. One that I've mentioned several times is conjugated linoleic acid, or CLA.

CLA appears to exert most of its influence by improving the digestion and metabolism of fat. If you'll recall, this digestion plays a role in signaling satiety. In one study of 54 overweight individuals, at the end of a 13-week period those taking at least 1.8 grams of CLA daily experienced a significant reduction in feelings of hunger and an increase in satiety. (*Eur J Clin Nutr 03;57:1268–1274*)

Along with the satiety benefit, CLA improves the user's ratio of lean body mass to fat mass. Muscle tissue weighs more than fat, so it's entirely possible that whatever is lost early on as fat is being replaced by muscle. This is one reason that users of CLA sometimes comment that they didn't see much weight loss in the beginning.

The replacement of fat by muscle may also explain one of the more surprising benefits of CLA for weight management: The loss continues with extended use. Users of CLA found that they were losing weight faster at the end of a 90-day study than they did at the beginning.

Another "supplement" that helps with weight loss is green tea. Research over the years has proven its value as part of a weight-loss program. For years it was believed that green tea's benefits came from its caffeine content. The guarana I mentioned earlier is simply an exotic source of caffeine, which jazzes up the body and brain.

Green tea also contains compounds called catechins; the most potent of these appears to be EGCG (for epigallocatechin gallate). Research into the effects of EGCG show that on its own it's more effective than caffeine at increasing the body's energy use throughout the day. EGCG increases thermogenesis within the brown fat cells, boosting the amount of energy used during a day. (*Am J Clin Nutr 99;70:1040–1045*)

In this past February's newsletter I wrote about how EGCG disappears from your bloodstream quickly, even when it's taken as a supplement. A technology known as phytosome encapsulation looks to be an effective method of making EGCG more easily digestible and keeping it available in the bloodstream for longer periods. In this process, droplets of a green tea extract are wrapped in a thin coat of phosphatidylcholine, a component of soy. (This part of soy is safe even if you're allergic to soy.)

Numerous substances have become available in phytosome formulations over the last several years, including lycopene and lipoic acid. Chemists have finally been able to apply this process successfully to green tea extracts. One current brand is called GreenTea Select. It's becoming more widely available with each passing month.

Weight gain is a slow, gradual process, and successful weight loss takes time as well. But once you've lost 20 pounds, pick up a 20-pound bag of flour the next time you're at the grocery and carry it with you up and down a couple aisles. You'll think to yourself, "How did I ever do this? Never again!"

One thing I want to emphasize is that weight is only one aspect of your health. Obsessing over every mouthful can be just as unhealthy as paying no attention at all. But weight is something to always be aware of. It's never too early to start doing something about your weight, and it's never too late.

Take care,

If you have questions or comments for Dr. Williams, please send them to the mail or e-mail addresses listed to the right. Of course, practical and ethical constraints prevent him from answering personal medical questions by mail or e-mail, but he'll answer as many as he can in the Mailbox section of *Alternatives*. For our part, we'll do our best to direct you to his issues, reports, and products related to the subject of your interest.

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