

EXPERIENCE L!FE

Being Healthy Is a Revolutionary Act

Guide to Healthy Living

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3 Simple Shifts

Looking for low-effort ways to eat healthier? These three small adjustments can make a surprisingly big difference in how you look and feel.

BY CATHERINE GUTHRIE



Good food, like timeless fashion, needn't be complicated. The secret to eating well with minimal effort is to base your diet on simple, whole foods that contain a wide variety of nutrients — *and* a satisfying range of flavors and textures.

The synergy of nutrients packaged in a single whole food far surpasses anything a single nutrient can offer, says Hana Abdulaziz Feeny, MS, RD, a nutrition counselor at the University of Arizona in Tucson. "If you think one antioxidant is important, think of the hundreds of antioxidants in something as simple as beans. Add in the fiber, and you've far exceeded anything you can expect from almost any other food."

And so it is that by making just three simple food shifts — eating beans more often, emphasizing more healthy fats, and limiting your intake of refined grains in favor of other healthy, complex carbs — you can enjoy an astonishingly wide and powerful range of health benefits. And they can help you drop excess weight, too.

SHIFT 1: THE BENEFITS OF BEANS

Beans may come in modest packaging, but they are "humble nutritional gems," says Kathie Swift, MS, RD, the nutrition direc-

tor for Food As Medicine at the Center for Mind-Body Medicine in Washington, D.C., and creator of MyFoundationDiet.com, a seasonal eating plan based on whole foods. A single serving of beans ($\frac{1}{2}$ cup) rivals the amount of protein in 2 ounces of lean meat. Most beans are also rich in fiber, B vitamins, antioxidants, and a host of minerals, including calcium and magnesium.

That said, no two bean types are identical. "Each bean has unique nutritional attributes," says Swift. "Black beans are high in antioxidants, soybeans host the phytochemical family of isoflavones, white beans are potassium-laden, and adzuki beans pack in some carotenoids."

Best of all, beans' goodness comes cheap: Ounce for ounce, they are one of the least expensive sources of protein. And for just pennies a serving, they can help you achieve some very important health goals:

Dodge diabetes. Beans help control blood sugar. In 2009, Canadian researchers analyzed the results of 41 randomized, controlled clinical trials, involving 1,674 people, that measured the health benefits of eating beans, lentils and peas. Their findings, published in the journal *Diabetologia*, concluded that people who regularly ate legumes had steadier blood-

sugar levels than people who didn't.

The reason? The high fiber content in beans slows digestion, which slows the absorption of sugars into the bloodstream. As a result, the bean-eaters' bodies were better at moderating sugar levels in the blood, an important factor in helping to prevent type 2 diabetes.

Resist weight gain. Results published in 2008 in the *Journal of the American College of Nutrition* found that bean-eaters had a 22 percent reduced risk of becoming obese compared with people who hadn't regularly eaten beans. The authors speculated that fiber was behind the health benefit, noting that it wards off weight gain by filling you up on fewer calories and keeping blood-sugar levels steady, which staves off food cravings.

Promote proper digestion. Beans are a powerful supporter of good elimination, which in turn helps keep toxicity and inflammation at bay. "Our ancestors ate up to 100 grams of fiber a day, but most of us today get only 15," says Beth Reardon, MS, RD, LDN, director of Integrative Nutrition at Duke Integrative Medicine in Durham, N.C.

Beans deliver both insoluble and soluble fiber. Soluble fiber dissolves in →

water, creating a gel-like substance that helps lower cholesterol and glucose levels. Insoluble fiber doesn't dissolve in water, so it passes through your digestive system relatively intact, which adds bulk to the stool and keeps traffic moving so toxins don't have a chance to build up in your system.

Regulate cholesterol. As noted, soluble fiber absorbs water as well as other things, such as cholesterol and excess sugars, which makes it a boon to heart health. Housed inside a plant's cellular membranes (rather than in the outer shell), soluble fiber forms a gooey, slow-moving gel as it travels through the gut. It gloms onto bile acids inside the intestines and ushers them out of the body, which prompts the liver to pull cholesterol out of the blood to make more bile. As a bonus, says Abdulaziz Feeney, soluble fiber sends feedback to the liver to slow down cholesterol production.

So if beans are so great, why aren't more of us eating them more often? The two main reasons that people avoid beans are texture and digestive distress, says Swift. If beans' texture bothers you, Swift recommends hummus or other creamy bean dips as a great entrypoint. If digestive distress is a deterrent, try adding a 4- to 6-inch strip of kombu (seaweed) to the beans as they cook to make them more digestible, or take an enzyme supplement to assist with digestion. Also keep in mind that as your body becomes accustomed to more fiber, and as your intestinal system gets cleaner, gas-related problems will likely diminish.

SHIFT 2: ENJOY HEALTHY FATS

While some fats (namely trans fats) are bad news, virtually all the naturally occurring fats in whole foods are good for you. A lot of folks don't realize that, though, so they've cut most fats out of their diets. They've used refined carbohydrates to fill the void and have experienced cravings, mood swings, chronic disease and weight gain as a result.

It's now widely understood that quick-digesting carbohydrates (like those found in sugar, white bread, white rice and white pasta), not fats, are primarily to blame for obesity, heart-disease, type 2 diabetes and

many of the other major health woes we face as a nation.

"I think that because there is such a fat phobia in America, many people are actually deficient in healthy fats," says Maggie Ward, MS, RD, LDN, nutrition director at the UltraWellness Center in Lenox, Mass.

The solution, says Ward, is to get the majority of your fats from whole foods. Snack on fat-rich nuts and seeds; slice avocado onto salads and sandwiches; enjoy clean, safe fish.

Whole-food sources of fats not only fill you up, so you're less likely to crave that morning bagel or afternoon cookie, but they also help your body get the essential fatty acids it can't make on its own.



I think that because there is such a fat phobia in America, many people are actually deficient in healthy fats."

Saturated fats from whole-food sources, like grass-fed meats, eggs, poultry and coconut, when enjoyed as part of a nutritious, high-fiber, plant-rich diet, are also good for you. "Saturated fat makes up part of our cell membranes, is needed for hormone synthesis and serves as a great fuel source," says Ward. "And like all fats, saturated fat really adds satiety to the diet and balances blood sugars." A 2010 meta-analysis of 21 studies involving nearly 350,000 people found no significant link between saturated fat in the diet and increased risk of heart disease. Those results, published in the *American Journal of Clinical Nutrition*, represent a total turnaround from advice given just a few short years ago. (Learn more at ELmag.com/heartnews.)

Here's what good fats can do for you:

Control cravings. Adding a little fat to each meal or snack can help you stay full longer, and minimize the carb cravings often caused by spikes and dives in blood sugar. "Fat is what adds satiety to a meal," says Ward. "If you have a little avocado,

butter or coconut, that meal is going to stick with you a lot longer."

Maintaining a good balance of dietary fats in the body also supports healthy metabolism, which is essential to weight loss. Try a handful of nuts in your smoothie, a dollop of full-fat yogurt on berries, or a slice of cheese with an apple.

Douse inflammation. Inflammation is at the root of a host of chronic ills, from heart disease to diabetes to certain cancers. Ironically, fat — long blamed as a contributing factor in such maladies — may actually turn out to be a significant factor in resolving them. Many experts agree that an imbalance in our fat intake (too many omega-6s from meats and vegetable oils like soybean, corn and safflower oils, and too few omega-3s) are fueling an epidemic of inflammatory diseases. "We evolved on a diet that was close to 1 to 1 (omega-6 to omega-3), and the majority of Americans are now eating closer to 20 to 1 or even 30 to 1," says Reardon.

Regain balance by cutting the amount of vegetable oils in your diet and upping your intake of omega-3-rich fish, such as salmon, anchovies and sardines, plus fish oils and plant sources such as walnuts and flaxseeds. If you eat meat, give preference to grass-fed and organic options, which are much higher in omega-3 fatty acids.

Build your brain. Omega-3 fatty acids — DHA (Docosahexaenoic Acid), in particular — make up 20 percent of the brain's gray matter, says Reardon. Inside the brain, our cell membranes are composed of fats that facilitate snappy cellular communication — which is why fatty-acid deficiencies are a common factor in depression, mood swings and compromised brain function.

SHIFT 3: GO EASY ON GRAINS

Grains are a dilemma. On one hand, unadulterated whole grains, like quinoa, buckwheat, amaranth and millet, are packed full of fiber, macronutrients, micronutrients and phytochemicals. Many studies connect the dots between a diet rich in whole grains and lower rates of obesity, diabetes and even some cancers. But conversely, an honest look at the →

average American's grain consumption points to some troubling trends. Most of us eat grains — primarily wheat products — with every meal. And of the more than half-pound of grains we eat every day, less than 1 ounce comes from whole grains.

What Swift calls “nutritionally naked” grains — everything from bagels and cereals to pasta — dominate the American diet. Many experts acknowledge the need for a food shift around grains, especially the disproportionate role of wheat in our diet.

“As a country we are ‘over-wheated,’” says Reardon, who calls it the “crowding out theory.” “Every time you eat another wheat-flour product, it’s a missed opportunity to get a nonwheat grain, like quinoa or buckwheat or, better yet, vegetables, like kale and squash, into your diet,” she says. “It’s time to start thinking more about those near misses.”

The first step is to rightsize the role of grains in your diet, says Swift. “Legumes, vegetables, fruits, and nuts and seeds need to be the foundational elements in building a healthy diet, with whole grains taking a less prominent place at the table.”

The second step is to make the vast majority of grains you *do* eat whole grains — not just whole-grain flours. Abdulaziz Feeny notes that flour-based foods are more likely than intact grains to create many of the same health problems in the body as sugars do, including unwanted weight gain.

“People need to understand the difference between a whole grain and whole-grain flour,” she says. “If all you’re doing is switching from white-flour products to whole-grain breads, spelt pretzels and rice pasta, you’re missing the goodness that more-intact grains have to offer.”

So, should you avoid grains altogether? That’s a matter of a passionate debate.

Since grains are a relative newcomer to the human diet (arriving a mere 15,000

years ago after 2 million grain-free years), some experts argue that the body isn’t well designed to process them. As noted, eating large quantities of grain is widely considered a recipe for weight gain and inflammation. And with an estimated 30 to 40 percent of the U.S. population at least somewhat intolerant to the gluten present in many popular grains, there may be additional reason to avoid them.

That said, for those who tolerate them well, whole grains can be a good source



Legumes, vegetables, fruits, and nuts and seeds need to be the foundational elements in building a healthy diet, with whole grains taking a less prominent place at the table.”

of healthy carbs, antioxidants and fiber — especially for active people in need of a reliable energy supply.

Whether or not you decide to significantly scale back your grain intake, being selective about the grains you eat can help you accomplish a number of healthy goals:

Stabilize blood sugar. Remember that most flour-based products quickly turn to sugars in your body. On the other hand, most intact whole grains (grains that *haven’t* been turned into flour) are much slower to digest, and less likely to cause blood-sugar spikes and dips.

Look for whole-kernel grains like quinoa, amaranth, millet and brown rice. And keep in mind that most whole-grain flour has the same glycemic index as refined flour. The glycemic index (GI for

short) of a food is based on how much the food raises blood-sugar levels compared with a standard carbohydrate (usually a marker based on white bread). You can reduce the glycemic impact of the grains you eat by mixing them with fats, proteins or high-fiber vegetables. For instance, a cup of white rice by itself is high on the glycemic index, but top it off with 1½ cups of stir-fried vegetables, some protein and fat, and the overall glycemic load of the meal drops dramatically.

Up your nutrient intake. Eating a variety of grains, rather than eating mostly wheat, gives you a much better range of nutrients. Barley, oats, buckwheat and quinoa are rich sources of both macro- and micronutrients. Most contain vitamin E, several B vitamins, calcium, magnesium, and trace minerals such as copper, zinc, iron and manganese. In addition, the soluble and insoluble fiber found in most whole grains, including oats and barley, can lower cholesterol, reduce inflammation and enhance digestion.

Balance your diet. Grains dominate so many foods (pastas, crackers, cereals and so on), they are easy to overeat. By downsizing your grain intake, you free up plate and stomach space for more variety. A daily serving or two of whole grains isn’t a bad thing, but don’t let them dominate your meals. “We are eating grains to the exclusion of plants,” says Reardon, who recommends nine to 13 servings of vegetables and fruits a day — almost impossible to pull off when grains are hogging all the room on your plate, and in your stomach. 🍌

Catherine Guthrie is a Bloomington, Ind.-based writer and a contributing editor to Experience Life.

Small Changes, Big Results

Healthy eating doesn't have to be complicated or expensive. Consider these small, but powerful, changes:

Eat within an hour of waking and every three to four hours throughout the day. Include a little fat and protein with every meal or snack. "You'll keep your metabolism up and avoid blood-sugar lows that create midafternoon cravings and brain fog," says Maggie Ward, MS, RD, LDN, nutrition director at the UltraWellness Center in Lenox, Mass.

Eat more nuts and seeds, preferably raw. A recent study found that people who eat more nuts (just 2.4 ounces daily) had a significant reduction in "bad" LDL cholesterol. Raw nuts are best because healthy fats are damaged or destroyed by the roasting process. Try soaking raw almonds overnight to make them even easier to digest.

Look for easy places to swap veggies for grains. For instance, instead of eating your hummus with pita chips, substitute baby carrots, broccoli florets, wedges of red bell pepper or sliced cucumber. Instead of eating nut butter on toast, spread it on apple wedges. For a pasta alternative, slice a zucchini into thin strips, sauté it with olive oil and top with Parmesan and pine nuts. Wrap your sandwich makings in romaine lettuce or Swiss chard leaves. Try a side of cauliflower in place of couscous.

Use more dried herbs and spices. Add dried oregano, thyme and basil to a mixture of olive oil and lemon juice for a quick, flavorful and antioxidant-rich salad dressing.

Eat more plant foods, especially dark, leafy greens and other brightly colored vegetables. Whether or not you eat meat, try to make plant-based foods a more central part of your diet. They are an important source of phytonutrients, antioxidants and fiber, all of which help fight inflammatory disease and are essential to human health, proper weight maintenance and more. Strive to eat at least one brightly colored veggie at each meal.

Add greens to your smoothie. Throw some spinach or Swiss chard leaves into your morning smoothie. It's a great way to sneak in an extra serving of veggies.

Drink more water. "For as many beverages as we find in the grocery, there are very few the body needs other than water," says Beth Reardon, MS, RD, LDN, director of integrative nutrition at Duke Integrative Medicine in Durham, N.C. The only other drink she imbibes? Green and white tea, up to five cups a day, for the extra antioxidant oomph.

Sugar Breakdown

When it comes to evaluating negative health impacts, the threat of extra pudge is just the beginning. Even greater health threats — including inflammation-based diseases — may lurk at the bottom of the sugar bowl.

BY CATHERINE GUTHRIE



Americans are on a bona fide sugar binge. During the past 25 years, the average person's intake of sugar and other natural sweeteners ballooned from 123 to as many as 160 pounds a year. That breaks down to more than 20 teaspoons of the added white stuff per person per day. And our collective sweet tooth is growing. For the past decade, Americans' sugar consumption has edged upward at the average rate of nearly 2 percent a year.

Why the sugar obsession? The vilification of fat may be partly to blame. During the low-fat frenzy of the past couple of decades, oils were squeezed out of processed foods — and sugar was pumped in to make reduced-fat foods tastier. It seems clear now that we effectively traded one dietary evil for another.

New research is revealing disturbing links not just between sugar and obesity, but also between sugar and inflammation. Inflammation, of course, has been implicated as a major factor in a number of vitality-zapping diseases, from cancer and diabetes to atherosclerosis and digestive disorders.

THE REFINED-CARB CONNECTION

On the spectrum of dietary dangers, processed sugars are on a par with unhealthy

fats. “High-fructose corn syrup is the primary cause of obesity in our culture,” says Elson Haas, MD, author of *Staying Healthy with Nutrition* (Celestial Arts, 2006, New Edition). “Our bodies simply aren't built to process all that sugar.”

Still, to date, sugar doesn't have nearly as bad a reputation as it probably deserves. One of the reasons it slips under the radar is that connecting the dots between sugar and disease requires widening the nutritional net to include all refined carbohydrates (like processed flours, cereals and sugars of all sorts). This may seem like a fine point, but it's an important distinction.

Most dietary sugars are simple carbohydrates, meaning that they're made up of one or two sugar molecules stuck together, making them easy to pull apart and digest. Complex carbohydrates, like those found in whole grains, legumes and many vegetables, are long chains of sugar molecules that must be broken apart during digestion, therefore offering a longer-lasting surge of energy. The presence of naturally occurring fiber, protein and fat in many whole foods further slows the sugar-release process.

The more processed and refined the carbohydrate, as a rule, the faster it breaks down in the digestive system, and the bigger the sugar rush it delivers. That's why

refined flours, sugars and sugar syrups pose such a problem for our systems.

The body is exquisitely designed to handle small amounts of sugar. But refined carbs deliver a larger rush than our bodies were designed to accommodate, or even cope with. In ancient times, hunter-gatherers coveted the occasional piece of fruit or slab of honeycomb as a rare treat and source of rapid-fire energy for, well — hunting and gathering.

Today, sugar lurks behind most cellophane wrappers, and the energy it provides is more likely to get socked away on our hips than burned while stalking dinner. Being active goes a long way toward vanquishing excess sugar in the bloodstream, but it doesn't negate the need to watch your intake. To make matters worse, unlike the fruit sugar (fructose) our ancestors savored, today's sugary treats are made with refined sugars (usually some derivative of table sugar or high-fructose corn syrup), which can overwhelm the body's ability to balance blood sugar.

“Refined sugar is a genetically unfamiliar ingredient,” says Jack Challem, a nutrition researcher and author of *The Inflammation Syndrome* (John Wiley & Sons, 2003). “A lot of health problems today are the result of ancient genes bumping up against modern foods.” →

To wrap your head around sugar's destructive powers, it helps to understand how the body reacts when it meets the sweet stuff. With each gulp of a sports drink or soda, for instance, simple carbohydrates are quickly dismantled into simple sugar molecules (glucose) that pass directly into the bloodstream. As a result, blood sugar rises markedly. To bring levels back to normal, the pancreas releases insulin, which lowers blood-sugar levels by escorting glucose out of the bloodstream and into cells.

If energy needs are high at the time sugar hits the bloodstream, that sugar is put to good use. But a too frequent or too heavy supply of sugar pushes the pancreas into overdrive, causing it to release too much insulin — a spew instead of a squirt. And an excessive release of insulin spells inflammatory trouble.

SUGAR AND INFLAMMATION

A newly understood phenomenon, inflammation underlies modern health scourges, from heart disease to obesity to diabetes. "Sugar can play a role in inflammatory diseases," says Dave Grotto, RD, a spokesperson for the American Dietetic Association. "Poor regulation of glucose and insulin is a breeding ground for inflammation."

Under normal conditions, inflammation helps the body rebound from injury. For instance, if you cut yourself shaving, white blood cells race to the scene to mop up the wound, destroy bacteria and mend tissue. But when the injury is deep inside the body, such as inside the blood vessels of the heart, hidden inflammation can trigger chronic disease, and experts are only beginning to understand how sugar fans the flames.

In the development of heart disease, the type of carbohydrate in your diet may be as important as the type of fat, says Walter Willett, MD, professor of epidemiology and nutrition at the Harvard School of Public Health (HSPH) and author of *Eat, Drink and Be Healthy* (Free Press, 2005). The more refined carbs you eat, the more likely you are to be supplying your body with more sugar than it can handle with healthy results.

That point hit home when Willett and a team of HSPH nutrition researchers

looked at diet and health history data from more than 75,500 women who took part in the Nurses' Health Study. At the start of the study in 1984, all the nurses were given a clean bill of health. Ten years later, 761 had either been diagnosed with or died from heart disease. When researchers distilled the numbers, they found a telling parallel between women eating a high-glycemic diet of refined carbohydrates and those with heart disease. An even more disturbing trend was within the group of women at risk for heart disease: Those who ate the most carbohydrates — including sugars — doubled their risk of heart attack compared to those with diets only moderately high in carbohydrates. Nutrition experts



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stress that there's no point avoiding the carbs that come from eating a balanced, healthy, whole-foods diet. But there is plenty of good reason to avoid the refined carbs that quickly turn to sugar in the body. Such sugars deliver more excess (and mostly empty) calories, which the body then converts to triglycerides, a key indicator of heart disease.

Sugar-rich diets stress the heart in other ways, too. When blood sugar is high, the body generates more free radicals. Rogue molecules that pinball through the body damaging cells, free radicals stimulate the immune response, which can inflame the lining of the blood vessels leading to the heart. And the damage doesn't stop there.

FROM SUGAR COMES FAT

Until recently, the connection between sugar and obesity was murky. Dietitians assumed that in the battle of the bulge, sugar was a lesser foe than dietary fat. But new studies reveal sugar may play a bigger role in weight gain than suspected.

And carrying excess body fat further reduces your body's ability to manage its sugars effectively.

When scientists want to measure the effects of sugar on health and weight, they turn to the biggest source of sugar in American diets: soft drinks. A pilot study published in the March 2006 issue of *Pediatrics* showed for the first time that simply cutting back on sugary drinks can reduce excess body fat. Researchers at Children's Hospital Boston enrolled 103 sugar-guzzling teenagers, divided them into two groups (an intervention and a control), and measured the effects of the drinks on their weight. For almost six months the intervention group got weekly home deliveries of their choice of noncaloric drinks, including bottled water, iced tea and diet sodas. The scientists called the teens monthly to check in and cheer them along. The control group went about their normal drinking habits. In the end, the teens in the intervention group cut their intake of sugary drinks by 82 percent and lost weight.

Although the average weight loss was "modest," the teens who weighed the most at the beginning saw the biggest losses, roughly a pound a month. This study goes to show that reducing sugar intake, particularly sugar-sweetened beverages, is one of the best ways to improve one's diet, Harvard's Willett says. "Sugar is an important source of excess calories in the American diet — a serious problem given the obesity epidemic."

CUTTING BACK

The best way to reduce unhealthy sugars in the diet is to consume fewer processed foods and drinks in general, and refined carbs and sugars in particular. Fuel your energy demands with a slower-burning balance of proteins, healthy fats and whole-food carbs.

For a healthier alternative to sugars that you add at the table or kitchen counter, dietitian Grotto suggests switching to sweeteners that are higher in naturally occurring fructose, such as agave syrup or malted barley, which have a less dramatic effect on blood sugar and insulin. Still, you should limit your intake to no more than 3 teaspoons a day. "These sweeteners won't elicit the glycemic response of →

table sugar,” he says, “but you shouldn’t eat them by the gallon.”

For sweetening tea or cereal, you might also try stevia, a natural calorie-free herb made from a South American shrub. It’s sold at health-food stores as a dietary supplement and is widely available in both powder and liquid forms.

Take heart: Enjoying a limited amount of refined sugar isn’t going to devastate an otherwise consistent healthy-living regi-

men — but that doesn’t mean you should keep swallowing it indiscriminately. “The sugar highs and lows brought on by high-carbohydrate foods create a dangerous addiction,” researcher Challem notes. And the sooner we break our addiction to sugar, the better off our bodies will be. 🍌

Catherine Guthrie is a Bloomington, Ind.-based writer and a contributing editor to Experience Life.

5 Sugar Fixes

Like most indulgences, a moderate amount of sugar is OK, especially if you’re at a healthy weight. The problem is that most of us don’t know what moderation looks like. The USDA recommends the average person eat no more than 10 teaspoons of sugar per day, which is the amount in a single canned soft drink or a quarter cup of pancake syrup. (A teaspoon is 4 grams of sugar.)

IF YOU FEEL THE URGE to eat something sweet, reach for a piece of fruit. Fructose, the natural sugar found in fruit, satisfies the sweet tooth without causing a jump in blood-sugar levels, because fruit is naturally packed with fiber and other nutrients that slow digestion, says Dave Grotto, RD, a spokesperson for the American Dietetic Association.

DON’T START THE DAY ON A SUGAR HIGH. Refined-carb cereals (even unsweetened varieties) are mostly starch and are therefore digested quickly as sugar. Protein and oils, on the other hand, slow digestion and leave you feeling full longer, says Elson Haas, MD, author of *Staying Healthy with Nutrition* (Celestial Arts, 2006, New Edition). Start your morning with peanut butter and whole-grain toast or a fruit smoothie with a dash of protein powder. If you can’t imagine breakfast without cereal, choose one with a maximum of 8 grams of sugar per serving.

STAY AWAY FROM PROCESSED FOODS. Like variations on a theme, they all contain the same handful of refined sugars and grains, but with flavor enhancers and trans fats to make them taste different. “The only difference between a doughnut and a

McDonald’s cheeseburger is a smattering of protein,” says Jack Challem, a nutrition researcher and author of *The Inflammation Syndrome* (John Wiley & Sons, 2003). “Both are a mixture of the worst things you could eat.”

USE COMMON SENSE. Load up on veggies, whole grains and lean meats at mealtime, and make dessert a special and very occasional treat, rather than a daily occurrence.

DON’T EAT WHEN YOU FEEL STRESSED. The fight-or-flight response speeds up the breakdown of sugar in the body, Grotto explains. “Your body is shoving glucose into cells as fast as possible because it thinks it has to get the heck outta there.”

Another piece of need-to-know info about sugar: Roughly 60 percent of the average American’s daily dose of it comes from corn sweeteners, such as high-fructose corn syrup. Table sugar (sucrose) accounts for another 40 percent. But sugar under any other name is still sugar. The white stuff slips into foods under many different guises. Check food labels for sugar’s other personalities: sucrose, high-fructose corn syrup, corn syrup, dextrose, glucose and maltose.

All About Oils

Some fats and oils are good for us — and critically important to our health. Others are just plain bad. And with some fats, it depends. Here's how to make sense of this slippery subject and make the very best choices about what you put into your body.

BY ANJULA RAZDAN



“**B**UTTER OR MARGARINE?” That once-ubiquitous catchphrase represents a much simpler time in the world of fats and oils. These days, we know that much of what we were told about early margarines being healthier was just plain wrong. But we now have even more choices to make among a dizzying array of oils, spreads, sprays and fatty-acid supplements — all claiming to be good for us (or at least better than what we're using now).

“When it comes to the science of dietary fats,” *The New York Times* food writer Kim Severson recently noted, “what to eat is a moving target.”

That's true — sort of. On the one hand, much of the actual science on fats has been well established for decades. But relatively little of that scientific information has been broadcast to the public sector in the form of good dietary advice. Instead, most of us have gotten a variety of mixed (and often industry-tainted) messages that have left us utterly confused and unsure about what to believe.

In the last several decades, many Americans, taking advice from organizations like the USDA and the American Heart Association (AHA), have been striving to eliminate fats — all fats — from their diet. Yet, recent studies have shown that low-fat or no-fat diets not only don't help

us lose weight, they also don't do much to reduce our risk of heart disease and certain types of cancer. Eliminating too many fats from our diet can also encourage us to overeat other foods, particularly refined carbs, that cause us to gain weight and increase our risks of disease.

It's worth noting that coronary heart disease was relatively rare in this country in the early 20th century, even though we ate more saturated fats — think beef suet and butter — than we do now. Of course, many factors, including reduced activity and an increased intake of processed foods, have also influenced the increase in heart disease since then. But many health experts, including fats-researcher Mary Enig, PhD, author of *Know Your Fats: The Complete Primer for Understanding the Nutrition of Fats, Oils, and Cholesterol* (Bethesda Press, 2000), have long asserted that our health downturn is first and foremost attributable to our increased consumption of trans-fatty acids.

The USDA and AHA remained surprisingly quiet about trans-fat dangers for decades. In fact, back in the days of the “butter-or-margarine” question (the days when most margarines were full of trans fats), both organizations tended to suggest margarine as the better option. And as for the value of healthy fats, neither

organization has been particularly vocal.

So it's no wonder we're confused. The key question on most consumers' minds these days remains: Which fats and oils are beneficial to our health and well-being — and which are not?

Fortunately, there are some reliable answers to that question. As Marion Nestle, PhD, MPH, professor of nutrition, food studies and public health at New York University, writes in her book *What to Eat: An Aisle-by-Aisle Guide to Savvy Food Choices and Good Eating* (North Point Press, 2006), “Fats, even more than carbohydrates, come in categories — they can be good, bad or neutral for health.”

SO MANY SQUEAKY WHEELS

More than ever before, leading nutrition experts are encouraging people to include an ample supply of healthy fats in their diets, noting the critical roles these “good” fats play throughout our bodies — and our brains, which are largely composed of fatty acids.

“Until the middle of the 20th century, fats were thought to play one main role in the body, that of providing fuel for cells,” writes Walter Willett, MD, PhD, author and professor of epidemiology and nutrition at the Harvard School of Public Health, in *Eat, Drink, and Be Healthy: The Harvard Medical School Guide to* →

Healthy Eating (Free Press, 2005). “We now know that they have many other important jobs. Fats provide the raw materials for building cell membranes . . . [which] control what gets in and what gets out. They make up the sheaths that surround and protect nerves. They are the raw materials from which some hormones are made, as well as other chemicals that control blood clotting and muscle contraction.”

Including an adequate amount of dietary fat also helps moderate the blood-sugar impact (or “glycemic load”) of the foods we eat. This is important because keeping blood-sugar levels stable is now recognized as an important factor in minimizing our risks for obesity, inflammation, diabetes and heart disease. All of which makes one wonder why the good news about fats has been a secret for so long. Many nutritional experts, including Udo Erasmus, PhD, author of *Fats that Heal, Fats that Kill* (Alive, 1993), believe that the message on fats has been muffled by business interests. “The government standards have really been more industry-friendly than health-driven,” Erasmus says. “If health and fitness are what we want, we have to set higher-than-minimum standards. We have to emulate nature’s standards, which industry and government don’t tend to do.” (For more on the fats debate, including a brief description of the “lipid hypothesis” that started much of it, read “Big Fat Controversy” (January/February 2004) and “Cholesterol Myths” (December 2005), available in the archives at experiencelife.com.)

Of course, the news that some fats and oils are beneficial to our health is not a mandate for us to start guzzling them by the glass (most nutritional experts still suggest keeping our intake of fats to about 30 percent of our caloric intake). But it is a call to take a step back and investigate the properties and promises of various dietary fats — and to better understand the roles they play in supporting or undermining our well-being.

THE SKINNY ON TRANS FATS

Although there is much debate over which fats and oils are best for our health, there is little debate over which are worst: trans

fats (or trans-fatty acids). Most experts agree they are dangerous in any quantity and suggest that we strive to eliminate them from our diets as quickly as possible.

Found in a wide variety of processed and packaged foods like crackers, cookies, energy bars, frozen meals and fast-food products, trans fats are produced by hydrogenating or partially hydrogenating plant oils. The process, which involves heating liquid plant oils in the presence of hydrogen and metal catalysts, changes the molecular structure of the oils in ways that allow them to remain



The government standards have really been more industry-friendly than health-driven. If health and fitness are what we want, we have to set higher-than-minimum standards.

solid (like butter or lard) at room temperature. This gives products containing trans fats a creamy texture, reduces cost and extends shelf life, but creates a wide range of adverse health effects. Among other problems, trans fats interfere with normal metabolism, disrupt hormone function and block the action of healthy omega-3 fats.

Like animal-derived saturated fats, trans fats raise our levels of LDL cholesterol, which contributes to heart disease. But trans fats also lower our levels of the protective HDL cholesterol and have been shown to create free radicals, which have been linked to cancer. They also contribute to obesity, promote clotting and damage cell membranes. Additionally, notes Willett, they contribute to a host of chronic diseases: “The latest research indicates that trans fats also fire inflammation, an overactivity of the immune system that plays key roles in the development of heart disease, diabetes, and probably other leading causes of death and disability.”

Starting last year, the FDA began requiring food manufacturers to list the

amounts of trans fats on their nutrition labels. Seeing the writing on the wall, several fast-food giants have already made the switch to non-trans-fat oils, and in December 2006, New York became the first U.S. city to ban trans fats from all its restaurants.

One unfortunate limitation of the FDA food-labeling regulations, Willett cautions, is that “a product is allowed to proclaim itself as ‘trans-fatty-acid-free’ if it contains less than one-half gram of trans fat per serving.”

To be totally certain that a product is free of trans fats, Willett recommends reading the ingredients list: If it says “hydrogenated,” “partially hydrogenated” or “vegetable shortening” anywhere on the label, put it back on the shelf.

BACK TO BALANCE

OK, so we know we’re not supposed to eat trans fats, but what should we be eating? Food expert Nina Planck, author of *Real Food: What to Eat and Why* (Bloomsbury, 2006) and former director of New York City’s open air Greenmarket, says it’s a matter of embracing the traditional and avoiding the industrial: “All the traditional fats — ideally unrefined — are healthy in moderation,” she writes.

Conversely, she notes, industrial fats (those mass produced with heat and chemicals or otherwise adulterated in laboratories) pose real health dangers. These, Planck asserts “you must avoid like the proverbial Black Death.”

In the category of traditional fats, Planck references virtually all naturally occurring and minimally processed fats that have been in our diet for generations, including animal fats, monounsaturated fats like extra-virgin olive oil, polyunsaturated fats like flaxseed and walnut oils, and even saturated fats like butter and coconut oil (the latter of which is rich in healthy medium-chain fatty acids).

In the category of industrial fats, she includes not only trans fats, but also highly refined “supermarket” vegetable oils (including corn, safflower and soybean oils) that have been added to our diets relatively recently.

You might be surprised to hear that these seemingly benign polyunsaturated vegetable oils are on Planck’s hit list, but →

as she explains it, “Industrial vegetable oils are unhealthy because they are too rich in omega-6 fats and because they are typically refined with heat, which makes them rancid and carcinogenic.”

It might seem counterintuitive to avoid oil that is rich in omega-6 fats. After all, the primary omega-6 fat found in vegetable oils, linoleic acid, is an essential fatty acid. The real problem, Planck says, is a matter of ratio. Americans eat way too many of most omega-6 fats overall, and not enough omega-3 fats to balance them out. Rather than the ideal 1 to 1 balance present in the varied diets of our ancient ancestors, the ratio of omega-6 fats to omega-3 fats in corn oil, for example, is 60 to 1; in safflower oil, it's 77 to 1. It's not hard to see how eating such oils in large quantities could significantly imbalance the fatty-acid levels in our bodies. (One exception to the omega-6 excess rule is the omega-6 fat gamma linolenic acid, or GLA — found in the oils of black currant, borage, evening primrose and Siberian pine nut. GLA acts more like a healing omega-3 fatty acid in the body.)

In addition to warning of the excess omega-6 fats found in vegetable oils, Planck is also leery of the refining process these oils usually undergo. “When our ancestors ate grains and omega-6 fats, they came from whole foods. . . . Native Americans rarely, if ever, ate pure corn oil. They ate the whole corn kernel: bran, carbohydrate, oil and all. Corn was ground slowly between stones, leaving its unsaturated fats and antioxidant vitamin E intact,” she explains. “Industrial vegetable-oil processing, by contrast, removes flavor and nutrients. Grain, beans and seeds are crushed under high heat and extracted with chemical solvents like hexane, which is then boiled off. They may be bleached, refined and deodorized. All this damages the polyunsaturated fats, destroys vitamin E and creates free radicals.”

Mark Hyman, MD, editor-in-chief of *Alternative Therapies in Health and Medicine* and author of *Ultra-Metabolism: The Simple Plan for Automatic Weight Loss* (Scribner, 2006), agrees that, ideally, the oils we eat should be as close as possible to their natural state. “Oils should be organic, cold-pressed and expeller-pressed, so that

they're not chemically altered in any way,” he says. “A lot of times, the refining process uses techniques that cause hydrogenation of the oils and chemically change their structure.”

The result, he notes, not only contributes to general toxicity and ill health, but also to metabolic disruptions and unwanted weight gain.

While Hyman agrees with Planck that the naturally occurring saturated fats from meats and dairy aren't bad in moderation, he points out that “most Americans already eat an excess of such fats.” He instead recommends emphasizing natural, minimally processed plant-based and fish oils, which tend to be best for both our bodies and our brains.



Oils should be organic, cold-pressed and expeller-pressed, so that they're not chemically altered in any way,”

CULINARY DISTINCTIONS

Even otherwise healthy oils can become unhealthy if over-heated. Some stand up well at high temperatures, others don't. Most nutritional experts recommend not taking any oil beyond its “smoking point” — the point at which it literally begins smoking, forming carcinogens and free radicals in the process.

Here's where things get a little tricky. As a rule, while less-refined oils are better for you and have richer flavor, refined oils tend to have higher smoking points. So ultimately, the key is finding the right oil for the job. (See Resources for more info.)

Generally, the lower heat you use, the more healthy options you have. Extra-virgin olive oil is a great all-purpose cooking oil, appropriate for most medium-heat sautéing and stir-frying. For roasting, baking and sautéing at medium-high heats, you can use a variety of refined nut and seed oils (be sure to inform any dinner guests if you use peanut oil, since peanut allergies can be fatal), or you can use saturated fats (like butter or coconut oil),

which tend to be more stable at higher temperatures. Check labels for smoking-points and usage suggestions for all oils before you add them to the pan.

For frying (which is best avoided for a variety of health reasons), only refined oils have a high enough smoking point. And some healthy polyunsaturated oils, like flaxseed and fish oils, which are high in omega-3 fatty acids, should never be used for cooking at any temperature. They have very low smoking points and are nutritionally compromised when heated. (Remember, too: The less saturated the oil, the more care you should take to package it in dark glass and keep it away from heat and light, both of which can cause the oil to oxidize and become rancid more quickly.)

“Omega-3 fats are very fragile,” says Liz Applegate, PhD, senior lecturer in nutrition and director of sports nutrition at the University of California, Davis. “There's evidence that when you high-heat cook omega-3 fats like flaxseed oil, for example, you may form free radicals that, down the road, have the potential to be carcinogenic.”

Instead, Applegate suggests tossing these types of oils into vinaigrettes or adding them to cooked dishes once they've been taken off the heat — drizzling them over salad or veggies, for example.

THE CANOLA CONUNDRUM

One interesting note in the oils war is the controversy surrounding canola oil, an oil bred and cultivated by two Canadians in the 1970s from the rapeseed plant. A monounsaturated oil that contains an impressive 2 to 1 ratio of omega-6 to omega-3 fatty acids, canola has been lauded as heart-healthy and embraced by Americans for everything from stir-frying to baking.

Many experts, including Willett and Applegate, see nothing wrong with canola oil. Yet others, including Planck and Erasmus, are wary about its use.

“For obvious reasons, there are no long-term studies: Canola oil is a relatively new food,” Planck writes in *Real Food*. “However, animal studies have linked canola oil with reduced platelet count, shorter life span and greater need for vitamin E. The United States and Canada →

do not permit canola oil to be used in infant formula because it retards growth in animals.”

Applegate dismisses the controversy surrounding canola oil as overblown. Canola oil is “very healthy and has been shown to have cholesterol-lowering benefits,” she says.

Hyman thinks the problems with canola may be overstated, but he’d prefer to see people using olive oil: “My philosophy is eating whole, real foods and not stuff that’s invented or processed by man.

We should eat foods we’re natively adapted to. Canola oil is an unusual new fat, and while I don’t think it may be as bad as people say, I also don’t think it should be the predominant source of oil in our diet. There are better options out there.”

NATURAL SELECTION

The point is, no matter how you feel about canola — or any other oil or fat — you now have an opportunity to make an informed personal choice. Most of us could stand to replace many of the fats in our current

diet with healthier alternatives.

So open your kitchen to a variety of healthy oils. And open your mind to the notion that certain fats, far from being a dietary enemy, may just be your body’s best friend. 🌱

Anjula Razdan is a senior editor at Experience Life.

Resources

WEB

www.hsph.harvard.edu/nutritionsource/pyramids.html — Reliable, objective nutritional advice on healthy fats, plus an alternative “Food Pyramid” that properly emphasizes the role of healthy oils.

www.spectrumorganics.com — This maker of high-quality oils offers a handy, downloadable kitchen guide that includes the smoking points and nutritional properties of various oils.

BOOKS

Know Your Fats by Mary Enig, PhD (Bethesda Press, 2000)

Real Food: What to Eat and Why by Nina Planck (Bloomsbury, 2006)

Eat, Drink, and Be Healthy by Walter Willett, MD, with Patrick J. Skerrett (Free Press, 2005)

UltraMetabolism: The Simple Plan for Automatic Weight Loss by Mark Hyman, MD (Scribner, 2006)

Phyto Power

Phytochemicals — plant-based micronutrients that contain protective, disease-preventing compounds — might just be the best-kept secret in nutrition.

BY ALYSSA FORD



Many of us are well aware of macronutrients, such as carbohydrates, protein and fat, as well as micronutrients, such as the vitamins and minerals that are listed on FDA-regulated food labels. But too few of us are familiar with phytochemicals — plant based micronutrients that offer many health benefits and may help ward off chronic diseases, such as cancer, diabetes, heart disease and stroke.

It's a time-tested truth: Plant-based foods, such as fruits, vegetables, legumes, whole grains, nuts and seeds, are good for you. But researchers recently have discovered that plant molecules connect with human cells in striking ways. In other words, we've known they were good for you — just not this good.

"I don't think there's been this much excitement since vitamins and minerals were discovered more than 100 years ago," says Beverly Clevidence, PhD, the research leader at the USDA-funded Food Components and Health Laboratory in Beltsville, Md.

The discoveries — partly because of the work of the Human Genome Project — are revolutionizing the way we think about food.

In the past 20 years, for example, researchers have discovered that carrots, kale and peanuts are not just plant tissues embedded with vitamins and minerals

that are easily encapsulated in multivitamins. Rather, these plant tissues are made up of tens of thousands of phytochemicals ("phyto" is from the Greek *phuton*, meaning plant).

You've probably heard of a few phytochemicals without even knowing what they are. For example, lycopene is a powerful phytonutrient found in tomatoes that helps fight heart disease and a variety of cancers. And the phenols found in strawberries protect against cancer and autoimmune diseases, and help reverse nerve-cell aging. But there are tens of thousands of other phytochemicals about which most of us know nothing. Experts in the nutrition field are buzzing about these chemicals with tongue-twisting names like glucoraphanin, zeaxanthin and saponin.

"This is an epic time," says Jeffrey Bland, PhD, president of MetaProteomics, a nutrition research facility in Gig Harbor, Wash. "Some of the discoveries we've made since 2000 are so profound that the textbook companies can't keep up with the information. There are brand-new nutrition textbooks out there that aren't slightly wrong about phytonutrients, they're totally wrong."

NUTRIENTS BEYOND NUMBER

When scientists first discovered these mysterious chemicals in the early 1950s,

they thought they had found new classes of vitamins. Some were even given names, such as "vitamin P" and "vitamin U." But on the whole, these chemicals were largely ignored.

"We made the assumption that these tens of thousands of molecules were not useful," says Bland. "They were considered to be flotsam and jetsam. They were refined out of shelf-stable foods with no worry, because they weren't 'essential' nutrients."

Technically, those early food manufacturers were right. Phytonutrients are "quasi-nutrients" or "conditionally essential," meaning that their absence in the body does not cause beriberi, rickets or some other type of deficiency disease. Many nutritionists now believe, however, that a phytonutrient deficiency can lead to conditions much worse than mere scurvy — think chronic diseases such as cancer and diabetes.

As our understanding of these chemicals has increased, so has their number.

The original "vitamin P," for example, is now known as flavonoids — a phytonutrient subclass that includes more than 4,000 chemicals. And the list continues to grow. In addition to the tens of thousands of phytonutrients, Bland says, there are an undetermined number of classes and subclasses.

"It's so hard to put a number on it," he →

explains. “It’s a constantly changing playing field. One day phytochemists think they’ve got it all worked out, and then suddenly they find a whole new family that previously was not recognized.”

The simple hop plant, for example, has more than 1,000 phytonutrients.

THE TICKET TO GREAT HEALTH

As the number of known phytochemicals has multiplied, so has the positive research. Scientists have discovered limonoids that detoxify the liver, phyosterols that block the growth of tumors, isoflavones that help destroy uterine cancer cells and polyphenols that restore lagging immune systems.

These chemicals repair and nourish the body in various ways. The phenols found in black and red berries, grapes, and eggplant, for example, discourage the development of cancer by blocking the conversion of precursor molecules into carcinogens. Saponins, found in foods such as alfalfa and legumes, inhibit the growth of cancer cells by interfering with their DNA. And flavonoids, found in citrus fruits, red wine and dark chocolate, inhibit a chemical called estrogen synthase, an enzyme that binds estrogen to the receptors in several organs and that can lead to breast and uterine cancers.

It starts with the same process: Intercellular transduction. That’s a mouthful, but essentially it means that phytonutrients convey information in the body. During the conversion from plant chemical to human-body booster, a phytonutrient will bind to the receptor sites on individual cells. The cell receives a message via a series of enzymes, which then trigger the genes to express specific patterns.

For example, sulforaphane, a phytonutrient found in cruciferous vegetables like broccoli, cauliflower and bok choy, helps to boost the body’s detoxification enzymes, which helps us to clear out potentially carcinogenic substances.

WHY FOOD IS YOUR BEST SOURCE

Eating a diet steeped in fruits, veggies, legumes and other plant-based foods (see “From Allicin to Zeaxanthin: The Phytonutrient Superstars,” page 15) is the best way to ensure you’re getting all the

phytonutrients your body needs. While there are a growing number of phytonutrient supplements available, many experts warn consumers away from that option.

The big cautionary tale here is beta-carotene. In 1995, it was considered the ultimate panacea. “There was so much good research on beta-carotene,” says David Williams, PhD, a researcher at the Linus Pauling Institute at Oregon State University in Corvallis. “We were charting nice correlations between beta-carotene in the blood and lower cancer risk. Basically everybody just assumed that beta-carotene was chemo-protective.”

But to the shock of many in the scientific community, two major clinical trials in 1996 indicated that beta-carotene supplements were not only useless against cancer, but actually increased the risk of cancer in smokers.

“That was one of the first big disappointments, and it made people rethink the idea of going after individual phytochemicals,” says Williams.

Mark Farnham, PhD, a plant geneticist who specializes in phytonutrient research at a USDA facility in Charleston, S.C., concurs that current scientific consensus is now leaning toward emphasizing whole foods, rather than supplements, because plant chemicals seem to interact with one another in powerful ways. “There seems to be a synergistic effect between the chemicals in food,” he explains, noting also that this synergy is very hard to study because plant-based whole foods contain so many different bioactive compounds that it would be almost impossible to separate and study the potential health benefits of individual phytochemicals.

Plus, each chemical seems to have its own quirks. The carotenoids in collard greens, sweet potatoes and tomatoes, for example, are best absorbed if they are chopped, puréed or cooked, and eaten with a little fat, such as olive oil. But the glucosinolates found in cruciferous vegetables are most effective when eaten in their raw state and thoroughly chewed, so the plant cell walls release more of the cancer-fighting chemical. “There’s really no useful rule, because they’re all unique,” says Clevidence. So eat as many fruits, veggies and other plant-based foods as you can, and be sure to choose foods

from all around the color wheel — from ripe red tomatoes to princely eggplant to vivid oranges.

“If on a daily basis you incorporate at least seven different colors, you are much more likely to get a wide variety of these nutrients that are healing, that prevent degenerative disease, and that will go to work on every tissue, cell and organ of the body,” says nutritionist Ann Louise Gittleman, PhD, coauthor of *The Fat Flush Plan* (McGraw-Hill, 2002).

And don’t be afraid to go exotic with your color choices. Unusually hued foods add intrigue to your plate, and researchers at Washington State University have found that those foods can yield health benefits as well. Their 2006 study showed that wild-colored spuds contained more phytonutrients than white-fleshed potatoes.

If you need more motivation to eat your veggies, start a vegetable plot, and then chow down on the fruits of your labor. A 1991 study published in the *Journal of Nutrition Education* found that vegetable gardeners ate significantly more eggplant, sweet and hot peppers, summer squashes, tomatoes, and herbs than did nongardeners.

It’s also a smart idea to avoid pesticide- and herbicide-drenched produce by going organic. Last year, Bland completed a survey of some 50 organics-related research reports and found that the vast majority of organic produce supported higher levels of phytonutrients.

If vegetables don’t usually appeal to you, consider taking just one vegetable-centered cooking class. It might make all the difference, according to a 2005 study in the *Journal of Nutrition Education and Behavior*. After all, what sounds better: Brussels sprouts, or roasted Brussels sprouts with pine nuts and marjoram?

Ultimately, if your strategy for good health has been limited to popping vitamins, consider what you’re missing: a smorgasbord of beneficial phytonutrients found in wonderful, whole, plant-based foods. Besides, real food has been through the most extensive laboratory experiment ever conducted — natural selection. There’s nothing that’s been proven to nourish our bodies quite so well. 🍌

Alyssa Ford is a Minneapolis-based writer and editor.

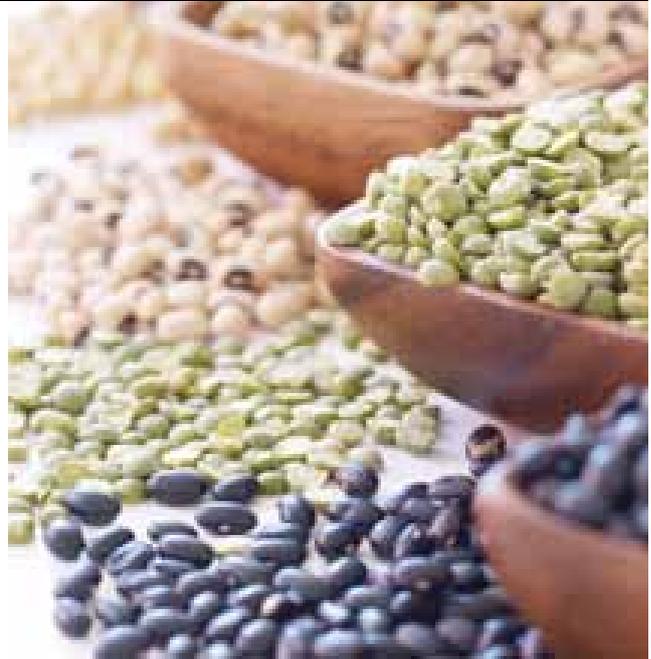
From ALLICIN to ZEAXANTHIN: The Phytonutrient Superstars

There are tens of thousands of phytonutrients within an as-yet-undetermined number of classes and subclasses. Here is a tour of some of the most prominent ones — and a glimpse at how they support our well-being.

| PHYTONUTRIENT: | FOUND IN: | GREAT FOR: |
|-----------------------------|---|---|
| ALLICIN | Garlic, onions, jicama | Eliminating toxins from the body |
| CAPSAICIN | Cayenne peppers, red peppers | Preventing toxic molecules from invading cells; reducing inflammation |
| CAROTENOIDS | Carrots, tomatoes, cantaloupe, arugula, spinach, collard greens, kale, mustard greens, Swiss chard, turnip greens, broccoli, Brussels sprouts, sweet potatoes, butternut squash, pumpkin, red peppers | Removing damaging free radicals from the cells, slowing macular degeneration, preventing cataracts, repairing DNA and blocking carcinogens from entering cells |
| CATECHINS | Green and black tea | Inhibiting the activation of carcinogens |
| ELLAGIC ACID | Grapes, strawberries, blackberries, cranberries, walnuts | Preventing cancer |
| GENISTEIN | Tofu, soymilk, soybeans | Inhibiting the formation of the blood vessels that help tumors grow |
| INDOLES AND ISOTHIOCYANATES | Collard greens, kale, broccoli, cauliflower, cabbage | Blocking carcinogens and interfering with the action of a precancerous form of estrogen |
| ISOFLAVONES | Kudzu, soybeans, peas, peanuts, legumes | Modulating estrogen levels; preventing breast, uterine and prostate cancers; and reducing the risk of heart disease and osteoporosis |
| LIGNANS | Seeds and grains, especially flaxseed | Inhibiting excessive estrogen action, and possibly reducing breast, colon and ovarian cancer |
| LIMONOIDS | Citrus fruit peels | Clearing congestive mucus from the lungs, detoxifying enzymes in the liver, and supporting detoxification of hormones and other substances that cause cellular decay |
| LYCOPENE | Tomatoes | Fighting heart disease and prostate cancer, plus reducing the risk of stomach, lung and prostate cancers |
| PHENOLS | Black and red berries, celery, cabbage, grapes, eggplant, peaches, nectarines | Preventing cancer, blocking specific enzymes that cause autoimmune diseases, protecting against heart attacks and strokes, preventing platelets in the blood from clumping, reversing nerve-cell aging, and destroying hepatoxins, which damage the liver |
| PHYTOSTEROLS | Pumpkin, rice, soybeans, yams, all green and yellow vegetables | Blocking “bad” cholesterol uptake, reducing inflammation and blocking the growth of tumors |
| POLYPHENOLS | Buckwheat, wheat germ | Restoring a lagging immune system |
| SAPONINS | Alfalfa, legumes | Lowering cholesterol and inhibiting the growth of cancer cells by interfering with their DNA |
| ZEAXANTHIN | Kale, daikon, collard greens, green sorrel, arugula | Enhancing immune function and preventing several types of cancer |

Fiber: Why It Matters More Than You Think

It's famous for improving regularity and helping lower cholesterol. But dietary fiber also performs other key roles that might surprise you, affecting everything from your skin to your gallbladder, heart and immunity.



BY EXPERIENCE LIFE STAFF

There's one ingredient that should be part of every meal. There's no need to make a trip to a special store to find it: Nature has already thoughtfully prepackaged it in a cornucopia of vegetables, legumes, fruits and nuts. The special ingredient? Fiber.

No huge surprise there. We've known for decades that fiber-rich foods are good for us. Many experts have observed that as people in other cultures have given up their traditional diets and adopted Western eating habits (dominated by processed foods much lower in fiber and higher in sugar), they've become susceptible to weight gain and a host of illnesses.

Meanwhile, a torrent of studies have shown that fiber-rich foods work wonders in the body, regulating blood-sugar levels, reducing the risk of coronary heart disease, stroke, hypertension, diabetes, obesity, breast cancer, colon cancer and gastrointestinal disorders such as reflux, duodenal ulcer, irritable bowel and diverticulitis (inflammation of abnormal pouches in the wall of the large intestine or colon), and also supporting weight loss.

Today, though, scientists are using newer tools to better understand the various ways fiber interacts with our bodies' basic systems. Some of this new work shows that fiber plays an essential role in

a little-known (and critically important) system in our body called enterohepatic circulation.

Entero is Latin for relating to the intestines, or gut; hepatic is Latin for pertaining to the liver. This system, which has the key job of clearing all fat-soluble waste from the bloodstream, governs the progression of bile — from the liver, through the small intestine, and back again.

If we don't eat enough soluble fiber, our bile, instead of being ushered out of the body and then replaced with fresh bile produced by the liver, is repeatedly recirculated in our system. In the process, it becomes more concentrated with toxins, which, in turn, can lead to all sorts of inflammatory diseases such as gallbladder disease, intestinal inflammation, and even skin conditions like acne, eczema and psoriasis.

Ultimately, a low-fiber diet can contribute to elevated levels of toxicity throughout the body, explains Alejandro Junger, MD, director of Integrative Medicine at Manhattan-based Lenox Hill Hospital and author of *Clean: The Revolutionary Program to Restore the Body's Natural Ability to Heal Itself* (HarperOne, 2009).

"When we don't eat fiber, the toxins that we should be eliminating through our bowels get reabsorbed into the bloodstream — and that can cause many problems," Junger says. "Unfortunately,

Western medicine is toxic-blind," he says. "In the Western medical world, toxicity means an acute problem like alcohol toxicity or someone who took too many pills. This more diffuse toxicity that I am talking about is rarely acknowledged at all in the Western medical world. And, the end effect of all this toxicity is inflammation — virtually everybody is inflamed today — which negatively affects various organs in many different ways."

Recent research has also focused on the way fiber boosts the immune system. It turns out that a wide variety of fiber-dependent processes are key to maintaining our resistance both to infections and to immune-related diseases like cancer. Yet few of us understand the mechanisms by which dietary fiber works, and why our vitality — not just our regularity — suffers so much when our fiber intake is inadequate.

HAULING THE BODY'S TRASH

Dietary fiber is the part of our plant foods that can't be digested. Traditionally, dietary fiber has been divided into two groups: insoluble and soluble. (For a list of foods in each category see "More Fiber, Please!" page 17.) Both bind with the body's waste products and help move them through proper channels. →

Insoluble fiber comes from the hard structural part of a plant, such as wheat bran, the tough husk around a popcorn kernel or the skins of many fruits and vegetables. Insoluble fiber makes its way through the digestive system relatively intact, acting as a sort of sweeping compound and making the stool softer and bulkier.

Soluble fiber, on the other hand, comes from structures within the cells of the plant. As soluble fiber enters the digestive tract, it absorbs water and dissolves into a thick, viscous gel. Although both types of fiber affect the body's ability to circulate bile effectively, soluble fiber is doing the bulk of the work.

When we eat a meal containing fat, our liver — the largest glandular organ in the body — begins to produce bile, a liquid comprising acids, cholesterol, lecithin and other substances. The liver produces around 4 cups of bile every day, all of which is eventually secreted into the duodenum — the first section of the small intestine — where it helps break down fats into smaller pieces.

Wisconsin-based nutritionist Karen Hurd, who specializes in resolving chronic digestive disorders, explains it this way: “Bile works in the small intestine much as a strong dish soap works in dishwasher — to help break up grease and food particles.”

Once broken down into pieces, most nutrients are absorbed in the upper part of the small intestine. In the ileum — at the lower end of the small intestine — the bile, broken down into its constituent parts, makes its way back to the liver, carried by the bloodstream.

The liver filters our blood, removing drugs, toxins, fats and fat-soluble waste, and disposes of these substances by depositing them in newly created bile.

Because the bile that has been absorbed in the ileum enters the bloodstream in its constituent parts, it reverts back to fats, toxins, drugs and fat-soluble waste — all the little pieces that made up the bile. The liver must again filter these components out of the bloodstream. They are added to the waste that has been newly collected from the bloodstream. The old bile, in its constituent parts, is combined with the new bile carrying its toxic load, which makes for an increasingly toxic bile that is secreted once again

into the small intestine.

As long as you have adequate fiber in your diet, this doesn't pose a problem for your body: That fiber forms a tight bond with the bile in the intestine, binding up all the harmful toxins, cholesterol and fat that it contains. Since the soluble fiber cannot be absorbed by the intestinal wall, neither can the bile attached to it. This fiber-bound bile ultimately leaves the body in a bowel movement, with its load of toxins, cholesterol and fat in tow.

But if we're eating a fiber-poor diet, our supply of bile can become increasingly concentrated with toxins and fats as it recycles back to the liver.

“I call bile the body's trash truck,” says Hurd. “It's as if the truck dumps its load in the bloodstream and the liver has to clean it all up again. Then you have old trash mixed in with the new.”



As bile becomes more polluted . . . it becomes sludgy, like mud. Eventually, it can turn into a solid substance we call gallstones.

Among other problems, inadequate fiber consumption can contribute to elevated blood cholesterol levels, notes Todd Rideout, PhD, adjunct professor at the University of Manitoba and research scientist at the university's Richardson Centre for Functional Foods and Nutraceuticals.

When bile is being properly escorted by fiber and carried out of the body by our stool, he explains, “there are fewer bile acids recycling to the liver and being stored in the gallbladder.” That means the next time we eat a meal with fat in it, the liver has to make fresh new bile. It manufactures this new bile by pulling cholesterol (one of the key components of bile) out of the blood, thereby reducing blood cholesterol levels. Under low-fiber conditions, though, that process doesn't happen as readily, and thus cholesterol has an opportunity to increase in the bloodstream and accumulate in our arteries.

A DANGEROUS SLUDGE

Another problem with inadequate fiber intake, Hurd says, is that it results in a change of consistency in our bile. As bile becomes more polluted, she explains, “the physical state of bile is not as liquid as before,” she says. “It becomes sludgy, like mud. Eventually, it can turn into a solid substance we call gallstones.”

Moreover, Hurd explains, the trashier and sludgier your bile becomes, the more acidic and irritating it becomes to your tissues. This can lead to a host of problems, including swelling and inflammation in your colon, duodenum and all the way up in your esophagus.

“Inflammation in the esophagus includes all kinds of things like Barrett's esophagus, where you have this thickening of the opening, so things feel like they get stuck in your throat,” says Hurd.

Sludgy bile causes not only various diseases of the gallbladder, explains Hurd, but also tertiary skin conditions, such as acne, eczema and psoriasis, which depend upon a properly functioning gallbladder to help bile break down into little pieces, or emulsify, the fats. The results, says Hurd, are predictable: “If you don't have the right types of fats in your skin, you'll have skin problems.”

Worse, if the fats are not successfully emulsified via the bile, the body falls back on a second, less desirable chemical process capable of breaking these long-chain fatty acids into usable short-chain fatty acids. That process is called oxidation, and it can lead both to premature aging and to inflammatory diseases of all kinds, including heart disease.

“If your bile is so sludgy that you cannot adequately emulsify the fat, and it dumps back in your body these long chains that have not been broken down properly, they will enter into your bloodstream by way of the ileum, travel through the lymphatic system and deposit into the circulatory system behind the heart,” explains Hurd. “The heart is one of the most oxygen-rich environments in the human body, and what happens is you will have immediate fat oxidation, which makes nasty little foam cells that are extremely sticky and build up inside the arteries. And then your arteries can ➔

become 50 percent blocked or 80 percent blocked or 100 percent blocked, for example. When you have 100 percent blockage, you have what's known as a myocardial infarction — a fancy phrase for heart attack.”

The idea that a lack of dietary fiber can be a root cause of atherosclerosis and heart attack is shocking to many people, notes Hurd. Yet there are other dire consequences of a faulty recycling system that may surprise us even more — like cancer, especially hormonally caused cancers such as estrogen types.

“Estrogen is made from fats. It's an example of a fat-soluble waste that is cleared by the liver,” Hurd explains. “But if you don't properly eliminate polluted bile, that estrogen goes back into your bloodstream, and the estrogen levels in your bloodstream mount,” she continues. “Then those estrogens can stimulate the growth of abnormal cells, which can lead to the growth of cancerous cells. And, then we have estrogen-type cancers, such as breast cancer, uterine cancer, fallopian tube cancer, ovarian cancer and vaginal cancer. Why are these cancers being stimulated? Because estrogen is stimulating their growth. Why do we have so much estrogen? Because we never threw it away via elimination when we had the chance.”

The encouraging news, says Hurd, is that one of the most promising ways to help end this vicious cycle — and to eliminate many painful and frustrating condi-

tions whose symptoms are commonly treated with drugs or surgery — is simply to eat an ample supply of fiber-rich foods.

BOOSTING IMMUNITY

We've seen that dietary fiber plays a huge part in keeping our bodies' filtration and elimination systems working properly, but that's really only part of the story. Fiber also plays a vital role in improving the effectiveness of the gastrointestinal system, which contains more than half the body's immune system.

After some dietary fibers pass through the small intestine undigested, they arrive in the large intestine, or colon, and serve as fuel for the friendly bacteria living there. These so-called prebiotic fibers help friendly bacteria grow and triumph over bad bugs in the colon.

“Fiber feeds good bacteria, so a lack of fiber actually kills the good bacteria in your gut — and the good bacteria in your gut is yet another thing that Western medicine does not clue into in terms of its importance,” says Junger. “In fact, very few gastroenterologists even deal with what kind of bacteria you have in your gut.”

According to some experts, a flourishing corps of friendly intestinal flora can help protect the lining of the intestine and prevent leaky gut syndrome, a condition that allows toxins, fungi and undigested proteins to get into the bloodstream. Leaky gut syndrome can cause a host of autoimmune diseases and allergies. (See “Good

Bacteria Welcome” in the July/August 2007 archives at experiencelife.com.)

Of course, there's one other benefit of a high-fiber diet. The foods that are naturally high in fiber — beans, vegetables, whole grains and fruits — are precisely the foods that are high in phytonutrients, vitamins, minerals and antioxidants. They tend to be lower-glycemic foods, too — the kind that naturally support steady energy and good weight management.

Given fiber's multiple benefits, it's clear that many of us practice the wrong nutritional math. Instead of trying to subtract calories, we should concentrate on adding grams of fiber (Hurd recommends 5 grams of soluble fiber — the equivalent of a half-cup cup of beans — at each meal).

The best part? You can see and feel the results from eating more fiber almost immediately. When introduced to a properly designed fiber-boosting regimen, says Hurd, many of her clients find that certain digestive troubles can vanish the same day. She's seen entrenched skin conditions clear up within a week and gallstones dissolve within six weeks. So, eat those beans! It's all part of a winning strategy for better health. 🍌

More Fiber, Please!

Recommendations for daily fiber intake range from 20 to 40 grams, but by some estimates, the average American eats only 8 grams. But we don't just need more fiber, experts say: We need more fiber distributed in small meals and snacks throughout the day.

“If you have all your fiber in one serving, it only acts on the food you eat then, not on the food you eat hours later,” says Christine Gerbstadt, MD, RDRN, a spokesperson for the American Dietetic Association. “Fiber doesn't hang around waiting for the next meal. If you want fiber to regulate your blood sugar all day, you have to eat it all day.”

Real, whole foods are your best source for fiber. Beans, in particular, are the richest source of soluble fiber we have, says Wisconsin-based nutritionist Karen Hurd, who recommends everyone eat

three half-cup servings of legumes daily as part of a whole-foods eating plan. But if you're getting sick of beans, she suggests substituting 2 teaspoons of psyllium husk powder (for those who are not allergic to psyllium husk) mixed in a glass of water for one or more of those servings. Here are some other good fiber sources:

- **Soluble fiber:** dried beans, lentils, oat bran, oatmeal, rice bran, barley, citrus fruits, strawberries and apple pulp.
- **Insoluble fiber:** whole grains (including wheat, rye, rice, barley and most other grains), cabbage, beets, carrots, Brussels sprouts, turnips, cauliflower and apple skin.
- **Prebiotic fiber:** legumes, wheat, barley, potatoes, rice, bananas, artichokes, onions and garlic.

Just Right Fitness

When it comes to exercise, the more, the better . . . right? Not necessarily. Finding your own fitness sweet spot is a balancing act.

BY JOE HART



As Paula Grenier prepared for her freshman year at the University of Wisconsin-Oshkosh, she experienced the typical anxieties and excitements about grades, boyfriends and roommates. But most of all, she worried about the “Freshman 15” — the proverbial 15 pounds that “fresh” gain during the first year away from home as a result of dorm food, late hours and school stress. It didn’t help matters when the doc at her precollege physical told her she was “too big.”

“I decided I’d be a run-every-morning girl. I became obsessed with weighing 128 pounds, so I started running twice a day,” recalls Grenier, now 41. But that goal was unrealistic. The tall, sturdy athlete was trying to retrofit her body to petite size. Eventually, she burned out on running and even flirted with depression and eating disorders while chasing her elusive “magic” weight.

A surprising number of us are like Grenier: We get caught up in arbitrary goals and ideals, and we totally lose track of whether our fitness routine is delivering both the experience and the results we’re after. We also lose track of whether our fitness ambitions support or degrade our larger life.

There are two chief dangers in this:

1) We may joylessly accept a force-fed fitness routine, working out harder and longer than we really need to and largely ignoring “softer” points, like balance, flexibility and recovery; and 2) we may wind up feeling overwhelmed by a too-ambitious fitness program and quit fitness activities entirely.

In both cases, you get the same lackluster result: An ill-fitting fitness endeavor that’s unsustainable for the long haul and that doesn’t deliver the full-spectrum fitness results you deserve.

Now, the good news: According to fitness experts, it doesn’t have to be that way. “You hear it all the time: ‘If you want to get in shape, eat less and exercise more,’” says Jonathan Ross, the American Council on Exercise’s 2006 personal trainer of the year and owner of Aion Fitness, a personal-training business. “But that’s the worst thing you can tell someone, because it underscores this assumption that more exercise is always better. More is not always better. Better is always better.”

So what would a “better” routine look like? Well, that depends on you. Does your current program have the right mix of intensity and recovery, challenge and ease, comfort and variety for your current fitness level and fitness appetite?

Does your fitness program suit your personality? And what about the rest of your life — your reality, right here and now? You might also investigate whether you’re currently working harder or spending more time than necessary to achieve your primary goals.

This article will help you conduct this sort of evaluation and equip you with insights to fine-tune your approach, if you choose.

If you’re one who tends to scoff at the very idea of backing off or branching out, or if you’ve been doing the same program for years and just can’t imagine changing it now, reconsider. Look at it this way: You can always go back to doing it “the old way,” if you like.

In the meantime, any new fitness tricks you happen to pick up are yours to keep. And even if you aren’t called to incorporate them now, you might find them handy if you decide to reassess your fitness routine in the future. Which, if you have kids, or get a new job, or get older, or hit a health challenge or encounter any other sort of major life change, you very well might.

BALANCE INTENSITY WITH RECOVERY

First, a lesson in fitness philosophy. If →

you still subscribe to the “no pain, no gain” school of training, you might be better off thinking “no rest, no reward.”

True, the latter slogan may not show up on a T-shirt any time soon, but without adequate recovery, all your intense exertions are unlikely to do you much good.

Plus, too much intensity can actually work against you. “It’s true that you want to go outside your comfort level, but you also don’t want to beat your head against the wall,” says Ross. “The right amount of challenge will lead to positive results, but too much will lead to injury and breakdown.” It can also lead to burnout, frustration and emotional resistance.

Finding the right amount of intensity, rest and recovery depends on your physiology and personal fitness goals. It also depends on your state of mind. Generally, the harder you push physically, the more assiduous you need to be about giving your body time and resources (including good nutrition and sleep) to rebuild. And when you’re stressed out, that goes double. If you’re already maxed-out energywise, a low-key outdoor Nordic-walking program or regimen of restorative yoga or tai chi may wind up doing you far more good than an extreme-fitness class.

MAKE YOUR MIX

The three basic forms of training — cardiovascular, resistance and flexibility — form an important triumvirate for health — and the intensity-recovery cycle is a little different with each. By blending these different types of activities, you can find a balance of high- and low-intensity exercise that makes good use of your time and allows your body to recover efficiently.

In fine-tuning your cardio approach, one key measure you’ll want to consider is your anaerobic threshold (AT), says Ray Browning, PhD, a researcher in obesity treatment and prevention at the University of Colorado at Denver’s Health Sciences Center. That threshold, which is different for everyone and changes as your fitness level improves, is the intensity at which your body gets more energy from anaerobic metabo-

lism (which means it begins to burn its glucose reserves) than from aerobic (when it’s burning mostly fat). Think of it as the moment when you switch from using steady, sustainable energy (during a slow jog, for instance) to high-powered turbo reserves of energy (sprinting).

By exercising at or just below your AT, says Browning, you can net dramatic cardiovascular fitness gains in minimal time. By interval training so that your heart rate repeatedly approaches and crosses your AT during the course of a workout, then returns to a lower, more sustainable pace, you can also achieve dramatic fat-burning results — both while you’re exercising and for hours afterward. (For more on that, see “A Better Way to Burn Fat” in the January/February 2007 archives.)



Generally, the harder you push physically, the more assiduous you need to be about giving your body time and resources (including good nutrition) to rebuild.

While you can get a lot of bang for your fitness buck by exercising at or above this level of intensity, you’ll also need to figure in some time for recovery. As a general rule, you’ll want to cycle between hard-push cardio days and easier ones. So on a day following high-intensity intervals or sprints, you’ll want to recover with something like a lower-zone jog or walk — or focus on resistance training and flexibility instead.

Resistance training involves a different set of physiological responses. When you lift a weight, you activate a variety of hormones that signal to the relevant muscle group that it’s undergoing stress. “The body is basically saying, ‘What are we going to do to adapt to this stress?’” says Browning. Our bodies first activate an increased percentage of muscle fibers. Then the hormones and neural inputs trigger anabolic growth of the muscles.

This muscle growth occurs only during periods of rest. “The body doesn’t

get stronger during training,” explains Charlie Brown, PhD, a clinical sports psychologist and director of Charlotte, N.C.-based FPS Performance, a consulting firm that helps people perform at peak levels. “Your body gets stronger when it rebuilds after the exercise. If you don’t rest, you’re in a progressive state of degeneration.”

Most experts recommend a lifting schedule that allows at least two days of recovery between resistance workouts for major muscle groups — meaning you can either alternate between upper- and lower-body groups with a day off in between, or simply get on a one-day-on, two-days-off cycle. Abdominal and core work, on the other hand, you can do every day.

Flexibility work, too, can be an everyday affair — and most of us would benefit by doing more of it. By expanding your muscles’ range of motion, you lessen your chance of injury and increase your functional strength, which means replacing a punishing weight session with a restorative yoga or Pilates class may not just feel better, it may also yield better results.

GETTING TO JUST RIGHT

OK, so now we know something about avoiding the “too much of a good thing” syndrome. But how much activity do we require to achieve and maintain a reasonably good level of fitness? Again, it depends.

For most people, Browning notes, it takes four to six weeks to see significant results from any new form of exercise. Then, after eight to 10 weeks, many people hit a plateau. “The body has adapted,” Browning explains.

Now, there are two ways to look at this. On the one hand, if you’ve reached your plateau and want to improve your level of fitness, you must either ramp up the intensity or the duration of your workout. For most people, duration is the easiest variable to play with, Browning says. If you work out three days a week for half an hour, after six or seven weeks, plan to add 10 minutes to two of your sessions.

Or, you can look at it a different way: After six weeks, it’s relatively easy to →

maintain your fitness level. “The levels required for maintaining are much less than what’s needed to increase fitness,” says Browning. Highly trained athletes will lose some ground if they back off their routines for long, he notes. But the rest of us can hold steady pretty easily: “The general rule of thumb is that a reasonably fit person could do two days a week of moderate exercise and not see significant declines,” Browning says.

In other words, one person’s plateau is another’s sustainable exercise routine. If you’ve been working out for years, steadily increasing duration and intensity, there’s a good chance you could back off of your routine a bit — or at least rebalance it with more variety and recreational activity — without losing much of your general fitness or ability. True, you might not be increasing your level of fitness with this strategy, but if you’re not competing, you may not need to. Or want to.

It may sound obvious, but fitness should be “first and foremost, fulfilling,” explains Rob Sleamaker, MS, an exercise physiologist, designer of high-level swim-specific training machines and

coauthor with Browning of *SERIOUS Training for Endurance Athletes* (Human Kinetics, 1996).

As a matter of fact, one of the most important factors in a successful, balanced fitness program is whether you like what you’re doing. And whether you like it depends, in part, on how well it fits within the larger context of your priorities. Psychologists like Brown consider lack of enjoyment a sign that you might be overtraining. “When you’re pushing your body too hard, you stop enjoying the workout, and, instead, you have to work out. It becomes a gotta-do instead of a wanna-do,” says Brown.

If your body is keeping pace with your workouts, but you’re still feeling out of sorts, it may mean that your workouts just aren’t in sync with your current reality. While a solid health and fitness program deserves a position of importance in any well-balanced life, the motivations that drove your fitness ambitions in college may be very different than your ambitions now. And if your fitness schedule and pursuits don’t reflect that shift, a certain amount of fitness ennui is likely to result (for more on this, see

“Where Fitness Fits In,” in the January/February 2007 archives).

FIND WHAT WORKS FOR YOU

Ultimately, finding the right routine requires some honest self-assessment. What are your goals? Your capabilities? And, most important, what makes you feel great?

By most measures, Paula Grenier is still a fitness enthusiast. She has competed in triathlons and marathons, runs and cycles regularly, works out with a personal trainer, and practices yoga. But she’s not trying to keep her weight down anymore — she’s having fun.

And perhaps it’s this sense of equilibrium that’s the best barometer of fitness success. It’s the not-too-punishing, not-too-paltry, not-too-anything sense of having landed in a fitness approach that feels “just right” to you. 🌟

Joseph Hart is a freelance writer and editor in Viroqua, Wis.

New Moves

Are you pushing yourself too hard, or boring yourself silly? Seeing fewer results from your old routine? When you need a new approach, try some of these ideas from the experts.

ALTERNATE: If you repeatedly do the same 30-minute midintensity run, followed by a paltry 5 minutes of stretching, try running intervals for 20 minutes and adding 10 minutes of flexibility, strength and balance work — say, with a short yoga or Pilates routine. Or swap an indoor cardio workout for a bike ride with your spouse — or a wrestling match with your kids.

If you currently focus solely on repetitive tasks like running or weight training, look for new ways to move yourself. Try rock climbing, dance or martial arts. Take up boxing or Nordic walking. Above all, strive for variety. It gives you a broader, more interesting workout. And reserve one day a week for rest. Always.

RESPIRATE: The way you’re breathing can indicate how effective your training is. If you’re soaked with sweat and panting for breath every minute of your workout, you’re probably overtaxing your body. Shallow panting can actually make your body more stressed, says John Douillard, PhD, author of *Body, Mind*

and *Sport* (Three Rivers Press, 2001). “When you gasp through your mouth, you’re triggering your fight-or-flight stress receptors,” he explains. “When you breathe through your nose, your lungs and rib cage work in a more efficient manner.” Douillard’s book describes nasal breathing techniques that can improve your workout.

INTEGRATE: If exercise feels stressful, or like just another chore in your too-busy day, it’s likely to get dropped altogether when more pressing matters arise — or when you just plain don’t feel like it. Instead, try to integrate activity into your regular life, suggests Charlie Brown, PhD, a clinical sports psychologist. “You can build fitness into everything you do in your daily life,” he says. “Use the stairway instead of elevators, and park farther away from the shopping mall.” Or look for ways to integrate activity and pleasure. Play a game of catch with your kids; invite friends for chat-walks; consider an activity-based class you’ll actually enjoy — like ballroom, salsa or belly dancing. The point is, seek out opportunities to move that don’t feel like work and obligation.

Getting to Sleep

It's the first thing to go when we're stressed. It's the last thing we get when we're busy. But not sleeping enough can lead our bodies into big trouble. Want to be fit and healthy? Find out why your shuteye should be a top priority.



BY CATHERINE GUTHRIE

How much sleep did you get last night? Odds are it wasn't enough. "No problem," you tell yourself. "I'll make up for it tonight." But will you? Not likely. The average American gets seven and a half hours of sleep a night, a substantial drop from the nine hours of slumber our grandparents enjoyed, and a substantial skimp on the optimal eight to eight and a half hours that science says most adults require.

The culprits, according to sleep experts, are 21st-century distractions: longer work hours, the draw of the Internet and the pervasiveness of televisions in bedrooms. Many Americans have grown accustomed to shaking off midday fatigue with jolts of cola or extra cups of coffee. But even if you manage to struggle through your days without chemical assistance, you should be aware that chronic sleep deprivation might be harming your body in unseen ways.

Inadequate sleep can lead to serious health risks. One of the most obvious dangers is falling asleep at the wheel. Drowsy drivers cause roughly 100,000 accidents a year, according to the National Sleep Foundation. Other harmful effects of sleep loss, however, are much more subtle.

"Chronic sleep deprivation is insidious," says Sean P. A. Drummond, PhD, an associate professor of psychiatry at

the University of California, San Diego, and the VA San Diego Healthcare System. "Most people don't realize they are sleep deprived because their perception of what 'normal' feels like has shifted." People have grown so accustomed to running on inadequate sleep, he says, that they take it in stride.

In his sleep laboratory, Drummond often sees people who snatch just six hours of sleep a night and convince themselves they are doing fine. "The body's ability to function on less sleep lulls people into a false sense of security," he says. "But normal isn't the same as optimal. And the body functions much less efficiently when sleep deprived."

A full night of restful sleep isn't an indulgence, insist medical experts. It's a necessity. New research is revealing just how inefficient the sleep-starved body can be. So before you decide to stay up late again tonight, or set your clock to go off in the wee hours of tomorrow morning, take a moment to learn how even subtle forms of sleep deprivation can sabotage your effectiveness, focus and vitality.

WHY WE SNOOZE

Even though everyone sleeps, no one knows exactly what purpose it serves. "Sleep is such a complex process, and it involves so many brain and body systems,

it's hard to weed out the fundamental function," says Drummond.

Of course, that's not to say there aren't dozens of theories behind the sleep enigma. One popular perspective suggests that sleeping evolved as a survival tool. Mammals that move around too much at night are more likely to become other animals' midnight snacks. Other theories focus more on the biological need for sleep. Many experts argue that while we sleep the body replenishes certain hormones and accomplishes important restorative and repair tasks. Still others believe sleeping allows the brain to rid itself of harmful free radicals.

Although experts are still unraveling the mystery of sleep, one thing is clear — the body suffers greatly without a good night's rest, becoming more vulnerable, less resilient and less efficient as its sleep debts increase. And it's not just chronic insomniacs who need to worry. According to the latest research, people who electively cheat on their sleep, even for just a week, increase their susceptibility to chronic illness.

Heart disease, in particular, is sensitive to lack of sleep. The most dramatic proof of this to date was published in the *Archives of Internal Medicine* (Jan. 27, 2003).

Researchers at Harvard School of Public Health and Brigham and Women's →

Hospital in Boston examined data from the ongoing Nurses' Health Study to find connections between sleep and heart health. The study looked back 10 years at the sleep habits of approximately 70,000 women. The investigators found that women who slept five or fewer hours were roughly 40 percent more likely to suffer from heart disease than those who received a full night's rest.

Following that group were women who slept just six hours a night (the sleep allotment of one in three Americans). Their risk of heart disease increased 18 percent.

It appears that sleep deprivation puts the body at a severe disadvantage in fending off all kinds of maladies. People who don't get enough sleep also tend to have higher blood pressure, poor blood-sugar regulation and increased inflammation, says Najib Ayas, MD, the study's lead investigator and an assistant professor of medicine at Vancouver General Hospital in British Columbia. "All of these things are risk factors for heart disease."

Although the study hasn't been duplicated in men, Ayas speculates the findings would be similar. He says there's a clear message that all people should take away from the study and put into practice in their own lives: "Adequate sleep should not be considered a luxury," he says, "but rather one of the pillars of a healthy lifestyle."

DIABETES RISK

A chronic lack of sleep may also pave the way for type 2 (adult-onset) diabetes. And the prevalence of diabetes is reaching epidemic proportions.

One in 10 Americans already suffer from the disease and the numbers are expected to climb dramatically in coming decades. Although most of the focus of diabetes prevention is on diet and exercise, chronic sleep loss may pose an additional threat because it undermines the body's ability to regulate blood sugar.

The connection between risk factors for diabetes and sleep has been firmly established in the wake of a groundbreaking study published in the British medical journal *The Lancet* (Oct. 23, 1999).

To examine the effects of sleep loss on the endocrine system, researchers at the University of Chicago recruited 11 young, healthy men. For the first few nights

they allowed the men to sleep a full eight hours. Then for six consecutive nights, researchers restricted their sleep to just four hours. At the study's conclusion, the men were allowed to sleep 12 hours straight for seven consecutive nights.

The results showed that the subject's glucose tolerance and stress hormones were in the normal range as long as they were getting plenty of sleep. But on days when they were sleep deprived, their bodies' ability to regulate glucose plunged by 30 percent — nearly identical to what's found in patients with type 2 diabetes. The researchers believe a lack of sleep threw off the brain's ability to correctly regulate the function of the pancreas.

One of the researchers' most interest-



A chronic lack of sleep may also pave the way for type 2 (adult-onset) diabetes. And the prevalence of diabetes is reaching epidemic proportions.

ing findings, says Drummond, was that the quality of the men's diets (they were allowed to choose from a list of foods) steadily deteriorated as the experiment progressed. "As people developed insulin resistance, they started requesting more candy, cake and chips," he says. "On a speculative basis, sleep loss might be said to contribute to obesity."

INFLAMMATORY ISSUE

Anywhere heart disease and diabetes lurk, chronic inflammation is sure to follow. A study published in the *Journal of the American College of Cardiology* (Vol. 43, No. 4, 2004) showed that sleep loss promotes low-level inflammation and therefore helps chronic disease gain a dangerous foothold.

Scientists enrolled 10 healthy volunteers with no signs of chronic inflammation. For 10 straight nights, the participants were allowed just a little more than four hours of sleep. Blood samples were taken on day one and day 10 of the study and tested for levels of C-reactive protein

(CRP), a marker used to measure the level of inflammation present in the blood.

At the end of the study, those participants robbed of sleep had a fourfold increase in CRP levels. "Sleep deprivation induces stress and elevations in cortisol (the stress hormone), which increases CRP levels," says Jack Challem, a medical researcher in Tucson, Ariz., and author of *The Inflammation Syndrome* (Wiley, 2003). "CRP sets off a cascade of problems."

If this news makes you want to crawl into bed and never come out, don't worry, there is an upside. Within a week or two of proper rest, the body reverses many of the ill effects of sleep loss. The body has an amazing ability to heal itself, says Drummond. "You can dramatically lower your risk factors for several diseases by just getting more sleep."

FINDING YOUR MAGIC NUMBER

Whether you're getting enough sleep or not, chances are you already know exactly how much slumber your body requires. (If there is any doubt, just go to bed when you are feeling tired. Don't set the alarm and sleep as long as possible. If you wake up feeling refreshed and you don't feel sleepy during the day, you've found your magic number.)

For the majority of people, that ideal period is between eight and eight and a half hours. People who need less or more sleep are most definitely the exception and not the rule, says Maurice Ohayon, MD, PhD, director of the Sleep Epidemiology Research Center at Stanford University. According to Ohayon's research, roughly 10 percent of people land on either end of the spectrum. On one end are people who need just six hours or less a night. Occupying the sleepier side are those whose bodies demand nine hours or more.

While the need or desire for sleep may temporarily fluctuate up or down in times of excitement, crisis, illness or injury, your preprogrammed need for sleep is unlikely to change much over the course of your adult lifetime. Thus you are unlikely to be successful in putting yourself on a "sleep diet" over the long term.

The idea may sound tempting, especially if your boss brags about needing only four hours of sleep and wonders why →

you can't do the same. Or if you just have so much to do that sleeping seems like a waste of time. "Sleeplessness is society-driven in many ways," asserts Drummond. "Too often our worth is judged by how much we produce, so people push themselves beyond their limits." No matter how much you try, though, if you're an eight-hour sleeper, training your body to adapt to a six-hour schedule is impossible, he says. "Your personal sleep need is a physiologically driven phenomenon."

People also like to fool themselves into thinking they can deplete sleep reservoirs during the workweek and make it up on weekends. Unfortunately, this system doesn't work, says Ohayon. In fact, by changing your sleeping pattern on the weekends, you may end up making matters worse. "Sleeping late on weekends only compounds the problem," he says. "You can't reimburse your sleep debt in one or two nights. You must sleep well for several nights in a row."

Americans may be getting the hint. Luxuriant master bedrooms are slowly replacing gourmet kitchens as the spaces where homeowners are willing to splurge, says Ohayon. He points to the growing awareness of good "sleep hygiene," such as buying a quality mattress and creating a restful environment, as signs people are beginning to wake up to the importance of sleep. Even so, people have a long way to go before they are giving rest the respect it deserves. "Considering that we sleep one-third of our lives, we should really invest one-third of our attention to getting a good night's sleep," says Ohayon. "But we don't."

PUTTING SLEEP TO BED

Eager to get more and better Zs? Begin with these strategies.

No. 1: Prioritize. Set a strict bedtime and stick to it. Just like being perpetually late for work, you have no excuse for missing your bedtime five out of seven nights a week. If you need help putting yourself in sleep mode, set an alarm for 30 minutes before your scheduled departure to snoozeville. When it goes off, drop what you're doing and begin to wind down. Take that extra half hour to walk the dog, brush your teeth, take a bath, do a little reading, etc.

No. 2: Ritualize. Whatever your bedtime routine, the key is to be consistent. "Having a ritual — even if it's just washing your face and brushing your teeth — helps condition your body to know it's time to go to sleep," says Nancy Blatt, executive director of the Better Sleep Council. Above all else, make a point of waking up at the same time each morning. Ideally, you'd wake up at the same time even on weekends and days off.

No. 3: Climatize. You probably know your bedroom should be dark and quiet, but temperature is equally important. A comfortable room temperature is between 68 and 72 degrees Fahrenheit — but only when you're awake. The ideal sleeping temperature is slightly cooler: between 60 and 65 degrees. The reason is that a sharp drop in body temperature often induces sleep, which is why lying in



People also like to fool themselves into thinking they can deplete sleep reservoirs during the workweek and make it up on weekends. Unfortunately, this system doesn't work.

a cool bed after a hot bath is so relaxing. Lower the thermostat before bedtime. If you're forgetful, install an automatic thermostat and program it to drop 30 minutes before bedtime and rise again in the morning.

No. 4: Choose good bedding. Think of it this way: You spend way more time in bed than in your car, but which gets a higher priority? Invest in a good mattress and comfortable bedding. Cotton, down, silk, wool and other natural fibers breathe best and often wear better over time. But be certain you aren't allergic to any materials on or near your bed. Keep bedding clean and inviting. Consider an air purifier (and possibly a humidifier) if you have problems breathing well at night.

No. 5: Don't blur bedroom boundaries. "More and more people are heading into the bedroom at 6 p.m. to eat dinner and watch television," says Ohayon. "The bedroom shouldn't become a dining room or a living room. It's just not conducive to a good night's sleep." Banish televisions, computers, phones and other distractions. Reserve the bedroom for sleeping and intimacy only.

No. 6: Feng Shui your space. Experts in feng shui, the ancient Chinese art of placement and design, assert that clutter blocks your flow of energy (chi), disrupting your sleep. Declare your bedroom a clutter-free zone. Create a smooth flow of energy by removing piles of clothes from your sight, tossing junk mail and papers and culling last month's magazines from your bedside table. Close drawers and closet doors before getting into bed. Finally, feng shui advises against placing your bed directly under a large window and also suggests avoiding having the head of your bed too near the room's entrance door. (For more tips on how to make your bedroom more of a sanctuary, see "3 Spaces to De-Clutter Now" in the May 2004 archives)

No. 7: Watch what you eat. Ideally, to give your body enough time to fully digest, you shouldn't eat a regular meal within two hours of bedtime. If you must eat near bedtime, eat lightly, and when possible, reach for foods that trigger the release of serotonin, the body's natural sleep inducer. (See "Snooze Foods" in the November 2004 archives.) For several hours before bedtime (some experts suggest up to eight hours), you should limit or eliminate your intake of alcohol and caffeine, as well as foods high in sugar or salt, all of which can have sleep-disrupting effects.

No. 8: See the light. Exposing yourself to bright light during the day can encourage better sleep at night. Sunlight suppresses melatonin levels, which increase when the sun sets and helps you sleep. (Think of it as conserving gas for a long car trip.) Experts still aren't sure how much light is needed to transport you to dreamland, but most point toward 20 minutes each day for adults. A good way to see the light is to exercise outdoors. People who take their workouts outside get roughly three times the average amount of light. →

No. 9: Sleep less. This advice may seem counterintuitive, but experts say it's one of the best ways to tame insomnia. People with insomnia often try to compensate by spending more time in bed, says Shawn Youngstedt, PhD, a sleep researcher at the University of South Carolina. The result, he says, is fragmented sleep. The solution? "Spending less time in bed consolidates sleep time," he says. Begin with the goal of sleeping five or six hours a night — say from midnight to 6 a.m. Go to bed and get up at the same time every day until you can sleep through the night. Then gradually begin to lengthen the time you spend in bed until you find a

routine that works well. In 2001, Duke University researchers used this method to treat 25 people with insomnia. In the end, they reduced their nighttime wakefulness by more than one-half.

Perhaps the most important thing to remember is that, right up there with choosing healthy foods and getting enough exercise, making adequate sleep a priority is one of the highest-impact things you can do to maintain and improve your health.

Keep in mind, too, that many of the other positive efforts you are making (like completing tough workouts and taking

in lots of good nutrition) can easily be undermined and blunted in their effects if you are depriving your body of its prime recovery and regeneration cycle.

So if you've been taking sleep for granted, making it an afterthought, relegating it to the bottom of your to-do list, or — heaven forbid — dismissing it as a necessary evil, you might want to rethink that point of view. At the very least, it's a decision you should sleep on. 🛏

Catherine Guthrie is a Bloomington, Ind.-based writer and a contributing editor to Experience Life.

Slumber-Savvy Workouts

The notion that regular exercise promotes a restful night's sleep seems like a no-brainer. A tired body is a sleepy body, right? Yes and no.

First, consider insomniacs, who have the most to gain from a steady dose of exercise. Randomized, controlled studies of insomniacs show that those who get between 30 and 45 minutes of moderate aerobic exercise in the late afternoon or early evening on four or more days a week sleep better than their sleep-challenged counterparts who eschew routine exercise.

But the effects of exercise on otherwise average sleepers aren't so black and white. The perception that exercise brings on sleep is generally based on the untrue assumption that physical fatigue is synonymous with sleepiness, says sleep researcher Shawn Youngstedt, PhD. "The two are very different things," he says.

The relationship between good sleep and exercise is more complicated than it appears. People tend to exercise on days they have more free time and, therefore, are less stressed, says Youngstedt. And, of course, people sleep better when they are stress-free, and exercise helps many people blow off stress. Also, exercisers tend to

be healthier than people who are inactive, and healthy people tend to sleep more soundly than those who are ill or in pain, according to Youngstedt.

Regardless of where exercise fits into the sleep equation, Youngstedt debunks the myth that working out late in the day interferes with a restful sleep. He points to several recent studies showing that vigorous exercise late in the day doesn't hijack a person's ability to snooze soundly, especially if you are fit. In one of his own clinical trials, he found that aerobically fit people could exercise up to 30 minutes before bedtime without compromising their ability to drift off to sleep (*Journal of Sleep Research*, 1997; 26:222).

You haven't been aerobically fit since mandatory PE classes? In an earlier study on how exercise affects people at a range of fitness levels, researchers found that those who wrapped up their workout within two hours of bedtime still slept soundly. "If people get the false message that it's bad to work out at night, it might keep them from exercising altogether," Youngstedt says. "Better to exercise late at night than not at all."

Sleep Disorder Glossary

Sleep disorders are surprisingly common (more than 70 million Americans suffer from a sleep problem, according to the National Center on Sleep Disorders Research). You should consult your doctor or a sleep expert if you suspect you might have any of the following:

SNORING: Snoring affects roughly 50 percent of men and 25 percent of women. The harsh, guttural sound is created when relaxed tissues in the back of the throat vibrate in response to passing airflow. Snoring treatments are plentiful and vary in simplicity and effectiveness. For example, losing excess weight or changing sleep position often solves the problem. Other times, laser surgery is required to eliminate extra tissue at the back of the throat.

BRUXISM: This occurs when you wake up with tension headaches or a sore jaw from grinding or clenching your teeth while you sleep. It's the third most common sleep disorder, after talking and snoring, and plagues up to 20 percent of sleepers. Treatments range from mouth guards to meditation. Ask your dentist to monitor your teeth for damage and for suggestions on how to quit.

RESTLESS LEGS SYNDROME: People with restless legs syndrome (RLS) often experience uncomfortable aches and pains in their legs while sitting, lying down or sleeping. Moving the legs can relieve the discomfort, but in turn it often disrupts one's sleep. Up to 12 million Americans suffer from RLS. For more information, contact the Restless Legs Syndrome Foundation at www.rls.org.

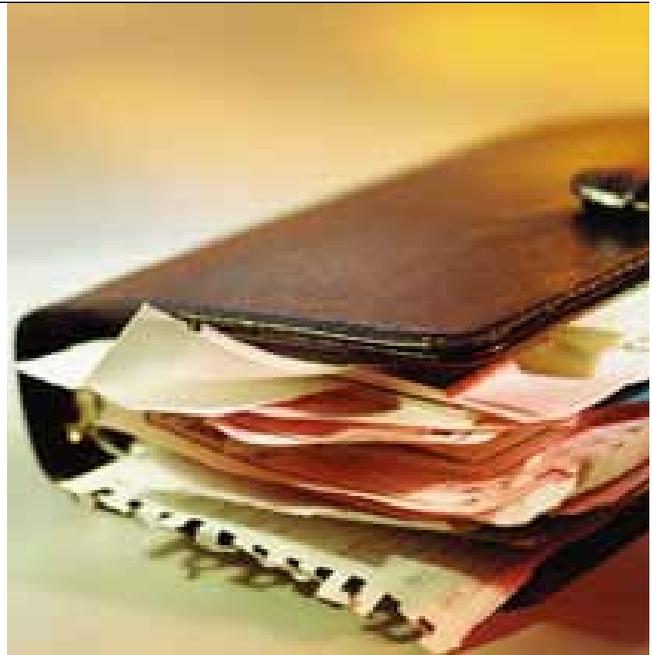
SLEEP APNEA: Sleep apnea is a disorder during which breathing is repeatedly cut off during sleep. The walls of the throat collapse on themselves, stopping airflow. After 10 to 30 seconds, the brain rouses the body enough to open the throat and take another breath. Many people with sleep apnea don't realize they aren't sleeping soundly at night but still suffer from severe daytime drowsiness. Like snorers and restless legs sufferers, they may negatively affect their partner's sleep. Sleep apnea has also been linked to hypertension and heart disease. For more information, visit the American Sleep Apnea Association at www.sleepapnea.org.

NARCOLEPSY: People who find themselves overwhelmed by the desire to sleep at inappropriate times may be narcoleptic. Narcolepsy is when the wakeful brain slips into REM sleep; the primary symptom is excessive sleepiness. Although up to 200,000 Americans suffer from narcolepsy, experts believe fewer than 50,000 have received an accurate diagnosis. As yet, there is no cure, but the condition can be treated with lifestyle changes and medication. For more information, contact the Narcolepsy Network by visiting www.narcolepsynetwork.org.

Back on Schedule

When you have too much on your plate, everything suffers. Here's how to stop overscheduling and recapture your sanity.

BY EXPERIENCE LIFE STAFF



Veronica Arreola's schedule just seemed to sneak up on her. Her job at the University of Illinois at Chicago required long hours, and she was doing some pro bono freelance writing for a local nonprofit. Weekday mornings, she drove her 6-year-old daughter to school, and after work she picked her up. She also fit in errands, housework and social obligations. It felt manageable — but just barely, and she was constantly running behind schedule.

And then things got worse. Commitments, tasks and other obligations began to fill in every nook and cranny of her waking hours. Soon Arreola, 34, found herself cramming work or chores into her nighttime hours, cutting into her sleep time. She wasn't eating well and self-care fell to the bottom of her to-do list, even after she started experiencing severe migraines.

"I was always wishing I had time to get a massage — and, really, I probably did have time, I just didn't make the time," she recalls. "I was always putting off things that would be good for me."

Eventually, her mood and her relationships began to suffer, and her depleted vitality negatively affected the quality of her work. "I was working hard to keep up," she says. "But then I wore myself out, got sick and fell behind because of missed time from work."

Arreola's plight is a familiar one. Most

of us pack our calendars to the gills in an effort to get more done. We commit to more than we should, assuming that we'll somehow squeeze it all in. Often, we ignore the consequences of overscheduling until, like Arreola, we become so exhausted we can't keep up, sometimes to the detriment of our health and our closest relationships.

So how can we stop overscheduling? Admitting we have a problem is the first step. But actually breaking our addiction to overscheduling requires acknowledging our limits, observing our patterns and clarifying the values that make our lives worth living in the first place.

BOUNDARY ISSUES

The world of work has changed dramatically in the past 20 years. We now live in a global marketplace, where people are doing business across far-flung time zones 24 hours a day, seven days a week. And instant communication (email, instant messaging, smartphones) has dissolved the once built-in boundaries around the workday. We're awash in interruptions — emails, text messages, cell phone calls — the combination of which can make it hard to complete even the simplest of tasks.

In fact, says Julie Morgenstern, author of *SHED Your Stuff, Change Your Life* (Fireside, 2009), many of us have lost the ability to accurately estimate how long activities are going to take before

we commit to them.

The other problem is that we don't accurately take stock of how busy we already are. "People overcommit simply because they don't know everything they've committed to," says time-management guru David Allen, author of *Getting Things Done* (Penguin, 2003). "Their self-regulating mechanism has blown a fuse."

All this adds up to a schedule that not only runs you ragged, but regularly throws you curve balls and prevents you from focusing on the things that matter most, says Morgenstern. "When you are overscheduled, you have no time to reflect on your priorities and your to-do lists, and you very easily get caught up in — and spend an enormous amount of time on — things that are not necessarily important."

MAKING TIME

Moving away from this sort of "what next?" reactivity is the first step to creating a manageable schedule. That means taking time to reflect on which tasks you really need to accomplish now, and which can wait or be dropped entirely. Once you prioritize things, here are some additional tips for taking control of your schedule:

- **Build in buffer zones.** When you're scheduling an activity or a deadline, pencil in a "buffer zone" — say, 15 to 30 minutes before and after each significant →

task — rather than scheduling items back-to-back. Including buffer zones serves a number of functions: First, it builds in the breaks you need to be effective and acknowledges the reality that virtually all tasks require some kind of mental and physical transition time. Second, it helps you tend to unexpected items that crop up during the day, including various tasks (such as filing, phone calls, schedule changes, travel time or conversations) that are attached to most efforts. Meetings, in particular, tend to involve both preparatory and subsequent tasks, and creating a zone of time to accommodate those demands keeps them from contributing to a full-blown cascade of lateness.

- **Know when you work best.** Everyone has peak times of energy, creativity and mental focus — and at times those resources lag. Pay attention to this ebb and flow and schedule your commitments accordingly: Plan to accomplish demanding tasks when you're likely to be charged up; the least important or challenging when you're more likely to have low energy or needing some kind of break. Working with your natural energy patterns will allow you to accomplish more in less time, and with less effort.

- **Understand your limits.** Most of us don't know how long it actually takes to complete routine tasks during our day, and as a result we have no clue about how much time to allot to various activities. Morgenstern suggests timing yourself doing the same task (such as creating a meeting agenda or sending a memo) on three different occasions and then determining the average. That number will give you a good guideline to follow when making similar future time commitments. Alternatively, you can start by doubling

the amount of time you think something “should” take. This will probably get you close to the actual time requirement, and you can always use any leftover time to get a head start on your next task. Finally, avoid scheduling more than one ultra-demanding task for the same day. It's a recipe for exhaustion and anxiety.

- **Harness the power of technology.** Turn off your phone ringer and email-alert beeps, and close down any social networking or instant-messaging tools before you begin your work session. Set a timer on your computer, desk clock or watch to alert you when your allotted time is almost up. If you see that you are running significantly behind as your day's agenda progresses, proactively reschedule or delegate any items that can't realistically be accomplished within the confines of your current schedule.

- **Fight the urge to multitask.** Performance psychologist Jim Loehr, EdD, author of *The Power of Story: Change Your Story, Change Your Destiny in Business and in Life* (Free Press, 2008), says multitasking is not the productivity maximizer many think it is. In fact, he says, it works against effective time use. “People get the sense — because there is so much on their plate — that they have to be able to do a number of things simultaneously,” Loehr explains. “But the energy signal in a human's focusing system is binary. You are either focused or you are not. If you have 10 balls in the air, nine of them are in free fall.”

- **Honor the priority of the moment.** As an extension of the multitasking wisdom above, designate specific hours for work, family and self-care, and don't let them bleed into each other. Writing staff performance reviews or answering emails

while trying to interact with someone you love doesn't give either commitment the attention it deserves. Worse, it will likely leave everyone involved feeling both frazzled and frustrated, creating a negative domino effect on the activities and interactions that follow.

A FRIENDLIER SCHEDULE

Arreola's migraines ultimately convinced her to rightsize her schedule. In addition to limiting her after-work obligations to two big commitments per week, she has begun leaving her work at the office more often. “At home I try to limit time on the Internet or my smartphone because otherwise I will constantly check email,” she says.

She is also trying to become more attuned to her body's signals. “The migraines raised the ante,” she admits. “Now, if I don't listen to my body, there's a bigger consequence.”

Both by choice and necessity, Arreola still puts a real priority on getting things done. But she's learned the hard way that overscheduling works against her productivity and personal effectiveness. So she uses an interactive online calendar to remind herself when to switch gears, when to take breaks and when to switch the computer off altogether. And she takes the scheduling of her self-care activities and downtime as seriously as she does her professional demands. “If I am making time for a board meeting or some other obligation, then I know I can make time to go to yoga,” she says.

The net effect is that she's healthier, less harried and more satisfied with her daily accomplishments. And rather than lamenting that she can't possibly get everything done, Arreola is taking comfort in the fact that she's doing the things that matter most — and getting better results from her efforts across the board. 🌱

Resources

Stephen Covey is one of the most prominent experts of modern-day time management. Learn more about his time-management principles by signing up for FranklinCovey's workshop, “FOCUS: Achieving Your Highest Priorities.” Register online at www.franklincovey.com/focus or call 800-391-1492.

The Human Performance Institute, cofounded by Dr. Jim Loehr (author of the national bestseller *The Power of Full Engagement*) and Dr. Jack Groppel (author of *The Corporate Athlete*), offers training and coaching to help people better manage time by cultivating and

managing their physical, mental and emotional energy. Learn more at www.corporateathlete.com.

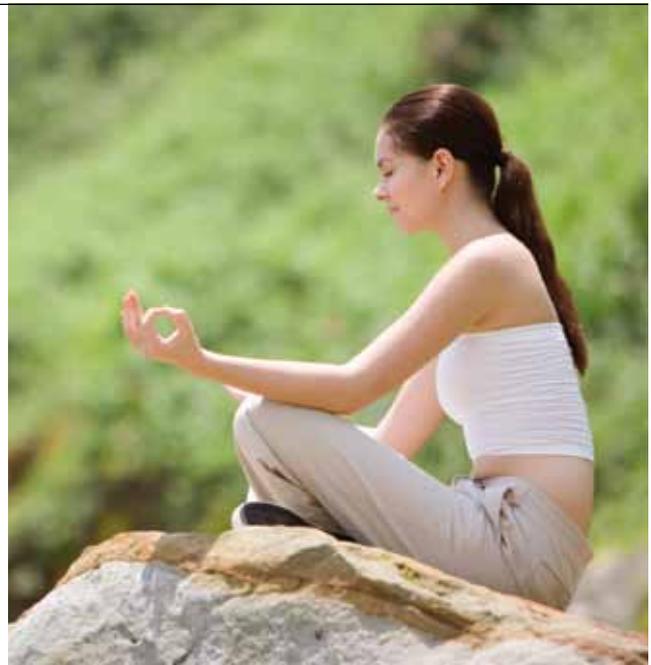
David Allen, author of *Getting Things Done: The Art of Stress-Free Productivity* (Penguin, 2003), offers individual workflow coaching, personal telecoaching and public seminars. Learn more about his methods and trainings at www.davidco.com.

Business productivity consultant Julie Morgenstern is the author of several bestsellers on organizing and time management. Visit her Web site at www.juliemorgenstern.com.

Learning to Sit Still

Whether you're at home or the office, whether you have five minutes or 20, you can meditate. Really. Here's a beginner's guide.

BY PATRICK DOWNES



You may want to sit down while reading this.

Make yourself comfortable, sitting forward in your seat with your back straight. Before reading another paragraph, close your eyes and count 10 breaths, keeping each breath at the center of your attention. I'll wait. . . .

Welcome back. And welcome to the practice of mindful meditation.

Meditation is surrounded by myth. You might think you need a guru or a space completely separated from the rest of the world. But the truth is, the work of meditation can begin naturally wherever you are. Mindful meditation is nothing more or less than awareness. Though we might feel an increased sense of well-being or relaxation after we've meditated, this is simply an effect of the process of becoming present and focusing our attention.

Although the practice of meditation is thousands of years old and is most commonly associated with Buddhism, it is a nondenominational and completely natural method to mitigate tension and stress, enhance mental clarity and focus, and manage daily health through conscious awareness of your body and mind. In fact, there is such overwhelming evidence of the health benefits of "sitting still" that many major corporations have launched

meditation programs. Even better? You can practice meditation anytime, anywhere — at the gym, at home or even at a traffic light.

MINDFULNESS OVER MINDLESSNESS

Perhaps you didn't actually close your eyes and count 10 breaths earlier. Or you did, but you found your mind wandering. Either way, don't stress about it.

"The moment we don't feel present, we suffer," says Zen teacher Cheri Huber, author of *Making a Change for Good: A Guide to Compassionate Self-Discipline* (Shambhala, 2007). In other words, the stress you may feel over what has already passed is keeping you from being present in this moment. "It's this disconnect that links to suffering," Huber says. "We are suffering over something that isn't in the moment."

Since the action of what Huber calls "the conditioned mind" is to frame our reality — analyzing the world and directing our responses — we are seldom attending to what is in the present, and in that sense, seldom mindful. Indeed, we too often experience our reality and ourselves mindlessly. To be mindless is to be turned outward, ever enmeshed in distractions from the present, such as wor-

rying over your dinner plans, a problem at work or a past disappointment.

But as Jon Kabat-Zinn, founding director of the Stress Reduction Clinic and the Center for Mindfulness in Medicine, Health Care and Society at the University of Massachusetts Medical School in Worcester, writes in his classic, *Wherever You Go, There You Are: Mindfulness Meditation in Everyday Life* (Hyperion, 1994), "Whatever you wind up doing, that's what you've wound up doing. Whatever you are thinking right now, that's what's on your mind. . . . The important question is, how are you going to handle it?"

MEDITATION IS THE WAY

If mindfulness is awareness of our present selves and world, then meditation is the way we can claim our present tense and declare our independence from the conditioned mind.

"Mindfulness is a natural faculty of our minds, like muscles in the body, and meditation is like a fitness program," says Susan Gillis Chapman, director of the three-year meditation retreat at Gampo Abbey in Cape Breton, Canada. "When you meditate, it's like working out, strengthening those muscles." →

BEGIN AT THE BEGINNING

Melissa Blacker, director of professional training at Kabat-Zinn's Center for Mindfulness, says we must start with the body. "We often start with an awareness of breathing," Blacker says. "We ask you to sit still, upright and feel each breath. As you find something that pulls you from your breath, notice it without judgment and return to your breathing."

Sometimes, focusing on an object, real or imagined, may help you become mindful of the present. "You can use any object as a focus to train your mind," Chapman says. "The breath is one, but any object of the senses can also be used, such as gazing at a rock or listening to sound."

Blacker concurs. To help those new to mindfulness meditation begin to practice, she uses what the teachers at the Center for Mindfulness call the raisin exercise.

"Take the raisin in your hand," she says. "Look at it closely, all the wrinkles, describe it, know it." This process, she says, encourages not only a mental awareness, but a sensual one as well.

BREATHE THROUGH IT

For those beginning meditation, staying with the breath may prove very challenging. Whether we call it "monkey mind" or — as Chapman describes it — "a bucking bronco," our attention can seem untamable. Huber compares our attention to a puppy and notes we must train it to stay with us. But it's this challenge to rein in our wandering minds that reminds us that meditation is a practice.

Since pursuing mindful meditation, especially in the beginning, can be tricky, Huber says we need to continually and compassionately encourage ourselves, rather than punishing ourselves for failing. The reward of mindfulness — waking from the conditioned mind — is worth the effort.

Chapman suggests mindfulness practice tends to become easier as we become accustomed to it. It is important, she says, "to cultivate a daily habit that's really positive." Giving yourself a brief retreat every day, perhaps 20 minutes in the morning or evening, may go a long way to keeping attention mindful and present,

as well as nourishing your relationship with yourself. What's essential is to give yourself time and a space where you feel comfortable. Then, Chapman says, divide the time into three parts: hearing, contemplating and meditating.

Spend a third of the time reading or listening to something inspirational, which will allow you to open your mind. Then, contemplate what inspires you by journaling, taking a walk, or talking with a friend or partner. Finally, spend the last part of your retreat in sitting meditation, allowing yourself to become calm and focused.

Mindfulness offers us the chance to live each moment of life fully. It is, Kabat-Zinn writes, "the direct opposite of taking life for granted." 🌱

Patrick Downes is a Maine-based writer and editor.

Stop and Meditate

Mindful meditation is "paying attention to the present moment, without judging what's present," says Melissa Blacker, director of professional training at the Center for Mindfulness in Medicine, Health Care and Society at the University of Massachusetts Medical School in Worcester. Meditation requires only the willingness to do it and a free moment, whether you're at the office, in the bath or sitting in your car at a traffic light.

The letters on a stop sign may remind you of an easy method of centering yourself in the present moment:

Stop. Let yourself come to rest. Take a breath. Notice the breath moving in and out of your body.

Open yourself to how you're feeling at that moment. Observe yourself and the world around you.

Proceed. Let go without judging what you observed and move on.

A practice like this can be used once or a hundred times a day to call you into the present — relaxing you, helping you focus, and allowing you to approach yourself and the world around you with greater clarity.

Put Stress In Its Place

Tired of feeling victimized by stress? Learn how to transform it into something manageable — and perhaps even make it your friend.

BY ANJULA RAZDAN



We've heard a lot of bad news about stress: that it reduces our life satisfaction, that it leaves us more susceptible to a host of physical and mental illnesses, and — according to new research — that it can even shrink and age our brains. Stress, by most counts, has become a major public enemy.

But there's also some good news about stress, like the fact that when handled properly, it can catalyze growth and positive change. Or the fact that stress can also function as a clarion call to awareness, and, as a result, can actually present us with a chance to better understand and claim what we most want in our lives.

"The closest Chinese word for stress consists of two characters; one signifies 'danger' and the other 'opportunity,'" notes Paul Rosch, MD, a clinical professor of medicine and psychiatry at New York Medical College and president of the American Institute of Stress in Yonkers, N.Y.

People who've triumphed over stress, Rosch emphasizes, have done so not by entirely eliminating it from their lives, but rather by filtering and responding to stressful experiences in more constructive ways.

So how does one manage stress to minimize its damage and maximize its potential gifts? What are the keys to transforming stress into a stimulus for growth —

as opposed to a trigger for breakdown?

We talked with several experts to figure out the best ways to proactively identify, buffer and constructively engage stress, rather than become a passive or reactive victim of it. Below are some of the best tools and suggestions for neutralizing and deflecting avoidable stress before it strikes, as well as for cultivating resilience and bouncing back from stressors that make it past our initial defenses.

A MATTER OF PERCEPTION

Most experts agree that the discomfort and damage we associate with stress generally occurs more as the result of our perceptions of — and subsequent reactions to — triggering circumstances, as opposed to being caused by the circumstances themselves.

"Many times we create our own stress because of faulty perception," says Rosch. "Take a roller-coaster ride. Some people sit in the back with their jaws clenched, grasping the retaining bar, while in the front you see the wide-eyed thrill seekers yelling and relishing every steep plunge. So is a roller-coaster ride stressful or not?"

The answer, Rosch says, lies in how each rider frames the event: "What distinguishes the people in the front of the roller coaster from the people in the

back is their perception of the event, their expectations and, most importantly, their sense of perceived control. All of our clinical and animal research confirms that the perception of not having any control is always stressful. [In the case of the roller-coaster riders], neither group really has any more or less control than the other, but their perceptions are entirely different — and that's what stress is all about."

So, is the answer for the white-knuckled people in the back of the roller coaster to simply give up scary amusement-park rides? That's one option, Rosch acknowledges, but a better strategy is reframing the event causing the anxiety so that it's no longer perceived as a source of unbearable stress. By empowering people to monitor and adjust their automatic reactions, he says, "you can teach them to move from the back of the roller coaster to the front."

SPHERES OF CONTROL

Very often, say stress-management experts, stress occurs at the intersection of a high perception of responsibility and a low perception of control. In other words, when we are (or feel) responsible for something, but we have (or feel that we have) little influence over its outcome, →

stress inevitably results.

Thus, the first key to tackling it is clarifying what you do and don't have real control over — and then aligning your responsibility level accordingly. Sometimes merely acknowledging that something falls beyond your realm of control (and, therefore, your responsibility) is enough to reduce your stress. In other cases, acquiring enough control to actively improve your situation is a better tactic.

“There are some stressful circumstances you can do something about,” says Rosch, “and some that you can't hope to avoid. The problem is, most of us never bother to distinguish between the two.”

For example, Rosch notes, there's probably no getting around the stress that results from, say, the death of a loved one. While you can choose how you approach the grieving process, you can't control the loss itself. This is one reason acceptance (which involves acknowledging both a lack of control and responsibility) is such an essential part of recovering from the stress of loss.

On the other hand, if something like a long commute is causing your stress level to rise, you may have to consider whether you're better off resigning yourself to the situation (low control, low responsibility), or choosing to change some things about it (higher control, higher responsibility). In the latter case, Rosch suggests, you might approach your supervisor and explain that you would be a more productive and satisfied employee if you could work at home two days a week.

If your supervisor agrees to accommodate you, great. But even if he or she doesn't, Rosch notes, you've by no means exhausted your options for regaining an additional measure of control. You can explore alternative solutions (e.g., a different job, a different home) or you can simply decide to alter your response to the situation at hand.

“Instead of trying in vain to find a shortcut to work and making rude gestures while you're driving,” suggests Rosch, “you can say, ‘OK, I'm going to take this time to listen to a book on tape that I haven't had time to read.’ By the time you reach the company parking lot, you might find that you actually want to stay in your car a few extra minutes to

hear the end of the story.”

In this instance, instead of being acted upon and adopting an attitude of learned helplessness, hopelessness or martyrdom, you dealt directly with the situation. Essentially, you reclaimed control by upgrading your response to the circumstances, if not the circumstances themselves.



There are some stressful circumstances you can do something about,” says Rosch, “and some that you can't hope to avoid. The problem is, most of us never bother to distinguish between the two.”

It's important to remember, though, that stress is generally a call for change of some kind. While adjusting your response to challenging circumstances can help you experience less stress in the short term, tolerating a miserable or offensive situation for too long can lead to more pervasive stress — and a lower quality of life — over time. So it's important to assess what the stressors in your life are asking from or telling you, and to address the components of “opportunity” (as well as danger) inherent in them.

ACCEPT OR EJECT

To identify those stressors you can take on and those you can't, Rosch suggests first sitting down and making a list of everything stressing you out. Then, separate the stressors into those you can (and choose to) manage and those that, at least for the moment, you need to accept and stop fretting about.

That's just the approach Alice Jones (not her real name) took when some politically charged policy issues arose at her workplace last year and she found her personal beliefs and convictions at odds with those of her employers.

“It wasn't just typical work stress,” Jones says. “It hit me on a very emotional level because my employer's position

clashed with my own overall values, and yet — aside from expressing my opinion — I had no influence on the decision-making. As much as I cared about the outcome, I had no real control over the situation.”

Compounding Jones's workplace stress was a series of family and health crises that had made the previous year very stressful on a personal level. Realizing she could no longer remain in this “emotional vortex,” and that she was also not yet prepared to leave her job, Jones resolved to instead focus on managing her own energy better.

On a return flight from a trip to San Francisco, she vowed to commit herself to a long-term daily yoga practice and to develop a set of “daily intentions.” The intentions would provide a framework for her choices and for the proper direction of her personal will.

Aspart of her intention-setting process, Jones developed a short list of questions she now runs through every morning to prioritize her essential tasks and responsibilities. Her questions include things like, “What's important for me to accomplish today?” “What's a good use of my energy?” and “Which of my current concerns are within my control, and which are outside of it?”

In addition to identifying the stressors Jones can't control and segregating them from ones she chooses to confront head-on, her daily intentions address how she wants to eat that day and how she can work in some exercise (even if it's just a 10-minute walk).

Although there's no one-size-fits-all cure for stress, says lifestyle coach and dietitian Libby Mills, MS, RD, developing a personalized stress-abatement plan like Jones's is a good place start. Staying focused on conscious choices and priorities not only wins you back your sense of control, she notes, it also gives you the opportunity to proactively create areas of success and satisfaction in your life that help you keep your remaining stresses in perspective.

Creating these small wins is better by far, she says, “than just going with the flow and then feeling victimized by the situation.”

Compartmentalizing is another strategy for dealing with stress, Mills suggests. ➔

Too often, we allow stress from one area or moment of our lives to bleed into and poison others. The result: Our reactions grow out of proportion to the original trigger, and our net stress burdens rise needlessly.

If you feel your stress level rising in response to a troubling circumstance, Mills advises these tips: “Set a time limit. Give yourself five to 10 minutes to experience and hash through your stress, and then time’s up. During the final minute, decompress and try to get back to your regular routine.” Once you’ve calmed down, you’ll have an opportunity to make more thoughtful and productive choices — and to take away useful learning from the experience.

THE INVOLVED HEART

As noted, on the flip side of attempting to limit the damage caused by stress lies the possibility of transforming it into something positive. One of the most fertile environments for this transformation exists within the realm of the body’s heart, says psychologist Deborah Rozman, PhD, author with Doc Childre

of *Transforming Stress: The HeartMath Solution for Relieving Worry, Fatigue and Tension* (New Harbinger, 2005).

In the last 20 years, Rozman says, the heart has been reclassified from just a pump to a hormonal gland that has its own “brain” of sorts that collects information from the entire body and then communicates it to the brain. “The heart,” she asserts, “sends more information to the brain than the brain sends back down to the heart.”

When we’re experiencing stress, the heart’s pattern gets jerky and arrhythmic and signals a chaotic pattern to the brain. “The heart tells the brain, ‘Go into survival mode. Shut down higher cortical functions. Look for a pattern of when we were threatened in the past that matches this one.’ As a result, the old fight-or-flight response comes up,” Rozman explains.

In contrast, when we perform simple relaxation or coherence exercises (see “How to Transform Stress”) that encourage us to feel positive emotions — love, appreciation, tolerance — heart-rhythm patterns are smooth. “The brain then

tells the frontal lobes that all systems are go, and you are able to open up to your most creative, intuitive, clear thinking,” Rozman says. “It’s safe to develop your potential and to transform stress into creative energy.”

If we accept the idea that stress has equivalent capacities for shutting us down or opening us up to something better, then we must also accept the challenge of responding to it constructively. Seen from this perspective, the call to “put stress in its place” ceases to be an exercise in resistance, and becomes instead an exploration — and expansion — of our resilience. 🌱

Anjula Razdan is a senior editor for Experience Life.

How To Transform Stress

Distinguish between unavoidable stressors and stressors you can do something about. “Don’t waste your time and energy in a frustrating attempt to influence things you can’t possibly change,” advises Paul Rosch, MD, a clinical professor of medicine and psychiatry at New York Medical College and president of the American Institute of Stress in Yonkers, N.Y.

Adopt a stress-abatement plan. “When you have a stress-management strategy and you track your progress with it,” says lifestyle coach Libby Mills, MS, RD, you’ve got a platform for success. “Even if you succumb to challenges in one area, you can look back on your progress and commend yourself on how far you have come. One stressful incident isn’t a complete sinking of the ship.”

Stress and release. When you experience something stressful, Mills advises, appreciate and learn from it — then let it go. Don’t let stress hang over you like a cloud that follows you everywhere.

Set boundaries. “It’s just not possible to please everybody,” says Rosch. Plus, the more things you agree to make “your problem,” the less time and energy you have to manage your resident stressors well. Setting healthy boundaries is a way of taking responsibility for your life and warding off external manipulations. “People will respect you more,” says Rosch, “when you respect yourself and your personal time.”

Start with the heart. When our heart-rhythm patterns are smooth and coherent, says psychologist Deborah Rozman, PhD, we can transform stress into creative energy. To achieve better heart coherence in a jiffy, try the Quick Coherence technique, outlined in Rozman and Doc Childre’s *Transforming Stress: The HeartMath Solution for Relieving Worry, Fatigue and Tension* (New Harbinger, 2005): Focus your attention in the area of your heart, and imagine you are breathing slowly and gently through your heart to a count of five in, five out. While continuing to breathe through your heart to this rhythm, imagine or reexperience a positive feeling or attitude, such as caring, compassion or appreciation. By holding a positive emotion as you breathe, you’ll create greater coherence in your heart rhythms and affect a shift in your neurological responses to boot. (According to HeartMath experts, breathing alone doesn’t affect as significant or as lasting an impact on the body.)

Forget perfection. Recognize that stress management is a learning process — it takes practice. “One of the things that yoga has taught me,” says former stress case Alice Jones, “is how to practice something without carrying too much judgment into it. I have learned how to let go.”

Fighting Inflammation

Some aging factors are beyond our control, but one of the biggest — inflammation — needn't be. Here's how you can extinguish the flames of chronic inflammation before they ignite.

BY CATHERINE GUTHRIE



Do you regularly irritate an old sports injury by playing too hard? Are you lactose intolerant, but not enough to swear off Ben & Jerry's? Do you ignore your acid reflux to indulge junk-food cravings? It might motivate you to avoid those impulses if you knew that these common and seemingly harmless transgressions can up your odds of developing dozens of diseases associated with aging and disability, including heart disease, diabetes, stroke, cancer and Alzheimer's.

The enemy is chronic inflammation: a process at the core of the body's most basic survival instincts that is now believed to be at the heart of a handful of deadly diseases. What's even worse — your body may already be under fire from inflammation caused by stress, poor diet and a couch-potato lifestyle. Inflammation can operate in stealth mode for years. When symptoms do finally become apparent, it's usually in the form of diabetes, osteoarthritis or other inflammation-related diseases.

But don't despair. Chronic inflammation is a problem you can take action to both prevent and fix.

WHAT IS INFLAMMATION?

Under ordinary circumstances, inflam-

mation is a healthy process that comes to the body's aid when it's injured. For instance, if you cut your finger while making dinner, the body's inflammatory response sends in an army of white blood cells to the scene. These cellular mercenaries destroy lurking bacteria while mending any ragged tissue. By the time you can see and feel physical signs of inflammation — heat, soreness and swelling — the cut is probably well on its way to healing. Sounds like a foolproof process, right?

Unfortunately, inflammation isn't always so exact. Like a houseguest who overstays his welcome, inflammation sometimes hangs around too long and refuses to leave. Aging is one of the biggest risk factors for inflammation, since, as we age, our bodies are less able to disarm the inflammatory process. A genetic predisposition, high blood pressure or even smoking can also fuel the flames. When the inflammation switch refuses to turn off, the body operates as if it is always under attack. White blood cells flood the system for weeks, months and even years.

The problem is that the immune system can't handle the constant demand. When the immune system becomes drained, the body then has difficulty

warding off other illnesses. For instance, viruses, bacterial infections, even cancer cells that are normally destroyed by a healthy immune system can now slip under the body's radar. Ultimately, the immune system may even turn against the body itself — the consequences of which are quite serious: Lupus, Graves' disease, Crohn's disease and fibromyalgia are all autoimmune disorders that come about when the body is assaulted by its own defenses. Scientists have known about autoimmune diseases for years, but now a new theory paints an even broader picture of how chronic inflammation helps other killers gain footholds.

INFLAMMATION AND DISEASE

Heart researchers were among the first to stumble upon inflammation's potential for destruction. Until the early 1990s, experts believed that heart disease, specifically atherosclerosis (hardening of the arteries), resulted from sticky plaque glomming onto smooth artery walls. As plaque buildup made the artery narrower, a blood clot could plug the last remaining opening and cause a heart attack. But as it turns out, the process is more complex and actually stems from chronic inflammation.

Today, medical experts know that →

arteries aren't smooth pipes lined with white globs of gluey fat. Instead they are dynamic, multilayered structures of tissue (think pastry shell). While it's true that arteries do absorb LDL (bad) cholesterol from the bloodstream, the difference is that, instead of sticking to the artery wall, the LDL seeps between the tissue layers and festers. The result is an angry, blister-like formation.

To contain the damage, the body triggers an inflammatory response. As inflammation sets in, the artery swells under the strain, which constricts blood flow to the heart. The blister delves deep into the artery's tissue and is covered by a scablike plaque. Disaster strikes in the form of a heart attack when the plaque bursts and debris barricades the artery.

Chronic inflammation is not only bad news for the heart, it also plays a significant role in jump-starting other diseases as well, particularly Alzheimer's disease, diabetes and certain cancers. With Alzheimer's, researchers connected the dots by looking into patients' pasts. Numerous studies have shown that people who use ibuprofen, a popular anti-inflammatory medication, lower their risk of acquiring Alzheimer's disease. (Ibuprofen is believed to slow the decline of Alzheimer's by reducing inflammation in the brain.) Although the mechanism isn't fully understood, neurologists believe that the brain's immune cells rally to attack the disease's telltale sign, beta-amyloid plaque. The ensuing skirmish creates inflammation that may spur progression of the disease.

Diabetes and chronic inflammation are likewise linked in a dysfunctional dance, although the reasons why are less easily understood. Experts know that type-2-diabetes rates skyrocket in unison with rising obesity statistics. The connection between obesity, diabetes and inflammation may be that fat cells secrete inflammation-boosting proteins called cytokines. In other words, more fat equals more inflammation. Over time, too many circulating cytokines hamper the body's ability to regulate insulin production. The insulin imbalance sets the stage for type 2 diabetes.

CANCER CONNECTION

Some forms of cancer can also be attributed to inflammation gone awry. Recent research indicates that inflammation plays either a leading or supporting role in many of the most common types of cancer — colon, stomach, lung and breast. Chronic inflammation wreaks havoc in the body by creating an ideal environment for free radicals, rogue molecules that travel through the body leaving a path of destruction in their wake. If a healthy cell's DNA is damaged by free radicals, it may mutate. As it continues to grow and divide, it may set the stage for a cancerous tumor. Free radicals stimulate inflammation and thereby perpetuate the inflammatory cycle.



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Chronic inflammation alone won't always spark cancer, but left untreated it may create a more hospitable place for cancer cells to thrive, according to Dave Grotto, director of nutrition education at the Block Center for Integrative Cancer Care in Chicago.

Colon cancer is one of the most common examples of a cancer that feeds on inflammation. Chronic inflammation is thought to heighten the risk of colon cancer by allowing free radicals to flourish in the intestines. Although scientists have long known that people with long-term inflammatory bowel disorders, such as ulcerative colitis and Crohn's disease, have an increased risk of colon cancer, they are only now beginning to point the finger at inflammation.

In a study published last February in the *Journal of the American Medical Association*, researchers followed 22,887 adults for more than 10 years to determine

if a link existed between colon cancer and inflammation. They found those participants who developed colon cancer had significantly higher plasma levels of C-reactive protein (CRP), an inflammatory marker used to measure one's level of inflammation, than their disease-free counterparts. (See "Take the CRP Test," on page 37 on measuring CRP levels.)

The good news: Unlike many uncontrollable risk factors for serious illness, such as family history of heart disease or living in a polluted city, chronic inflammation is something you can control and even prevent through diet and exercise. Here's a closer look at how both can influence inflammation.

ANTI-INFLAMMATORY EATING

Most foods either rev up inflammation or tamp it down. A diet high in trans-fatty acids, carbohydrates and sugar drives the body to create inflammatory chemicals. On the flip side, a diet heavy on vegetables, lean meats, whole grains and omega-3 fatty acids puts the brakes on the inflammatory process.

Early humans consumed an excellent balance of pro-inflammatory fats (mainly omega-6s) and anti-inflammatory fats (such as omega-3s and -9s). People today, however, often chow down on 30 times more bad fats than good. "The typical American diet is priming people for inflammation," says Jack Challem, author of *The Inflammation Syndrome* (John Wiley & Sons, 2003). "It's like sitting in a parked car with your foot on the gas. Eventually you'll overheat."

But your diet doesn't have to be a recipe for disaster. In fact, dozens of foods, herbs and spices can help the body douse inflammatory hot spots. For evidence, witness recent studies of rheumatoid arthritis. In one, published in the journal *Rheumatology International* (Jan., 2003), German scientists studied 68 patients with the crippling disease. Some were asked to eat a typical Western diet for the duration of the eight-month trial, while the rest followed an anti-inflammatory diet, which included cutting back on meat and high-fat dairy foods. A subset of each group also took fish-oil supplements. By the study's end, ➔

those in the anti-inflammatory-diet-only group reported a 14 percent decrease in joint tenderness and swelling compared to those in the Western diet group. Fish-oil supplements boosted the results even further, bringing the final tally of those feeling a marked improvement up to 31 percent in the anti-inflammatory-diet group.

The bottom line? If you have an inflammation-related illness, such as atherosclerosis or arthritis, altering your eating habits may help you tame your symptoms, or even change the course of the disease. And if your genes or a sedentary lifestyle put you at risk for chronic inflammation, eating right may make the difference between staying healthy or drifting downhill.

Here is a simple five-step diet plan to help you fight inflammation.

1. GET FRIENDLY WITH FISH: Fish overflows with two key omega-3 fatty acids: eicosapentaenoic acid and docosahexaenoic acid (EPA and DHA for short). Both are potent anti-inflammatories. Studies show that people who eat fish regularly are less likely to die from a heart attack or stroke, or develop Alzheimer's disease. In fact, studies have shown that eating omega-3-rich fish just once a week may lower a person's risk of developing Alzheimer's by up to 60 percent.

To reap fish's health perks, nutritional experts recommend indulging in a fish dish at least twice a week (baked or broiled, not fried). To get the most omega-3 fatty acids, stick to either fresh or frozen coldwater fish, including mackerel, salmon and tuna. Avoid oil-packed tuna, since the omega-3s tend to leach into surrounding oil.

You also need to watch out for fish that may contain toxins, especially if you're in a high-risk category. Women who are either pregnant or hoping to be should avoid shark, swordfish, king mackerel and tilefish, all of which may hold potentially dangerous levels of mercury, which can damage a developing fetus. (Nursing mothers and young children also should avoid these fish.) Studies have shown that some albacore tuna (often packaged as canned white tuna) has unsafe mercury levels. This past March, the FDA and

Environmental Protection Agency published a joint statement recommending that pregnant women, nursing mothers and children eat no more than 6 ounces of albacore tuna each week, or approximately one serving.

There are options for vegetarians, too, though they're not ideal. The body can make its own EPA and DHA from omega-3 fats (called alpha-linolenic acid, or ALA), which are found in flaxseed, wheat germ and walnuts (as well as some oils). But you'd better be hungry. The body's mecha-



The bottom line. If you have an inflammation-related illness, such as atherosclerosis or arthritis, altering your eating habits may help you tame your symptoms, or even change the course of the disease.

nism for converting plant-based omega-3s isn't particularly effective. You'll need to eat four times as much ALA to equal the amount of bioavailable omega-3s found in a 3-ounce serving of fish.

Although flaxseed is often touted as an equal substitute to fish oil, it just can't compete, says Jim LaValle, a naturopathic physician at the Longer Living Institute in Cincinnati, Ohio, and author of *The Cox-2 Connection* (Healing Arts Press, 2001). Vegetarians concerned about inflammation should consider fish-oil supplements. If fish oil is out of the question, focus instead on lowering intake of bad fats and ingesting more good fats, including extra virgin olive oil, wheat germ oil, hemp oil and flaxseed oil.

2. CHOOSE FATS WISELY: The body uses fatty acids to make prostaglandins, the main hormones that control inflammation. Because the body must make do with what's at hand, a diet heavy in pro-inflammatory fats will fan inflammation. Conversely, meals that balance pro- and anti-inflammatory fats cool things off. Fats to avoid include safflower oil,

sunflower oil, corn oil and all partially hydrogenated oil. Fats that get a green light are fatty coldwater fish, extra virgin olive oil, canola oil, walnuts and flax (plus those listed above).

Begin tackling fat by cutting out the worst offender: trans-fatty acids. "If your diet is rich in trans-fatty acids, you're going to drive your body to make more inflammatory chemicals," says LaValle. The top sources for trans-fatty acids are vegetable shortenings and hard margarines, but most processed foods also contain them in various levels. Soon, trans-fatty acids will be easier to spot, thanks to new legislation requiring food makers to add trans-fatty acids to ingredient labels by 2006.

3. EMBRACE YOUR INNER HERBIVORE: Fruits and vegetables are storehouses of antioxidants and other anti-inflammatory compounds. The best sources are brightly colored fruit and vegetables, such as blueberries, strawberries, bell peppers and spinach. "Anytime you go with a large variety of colors, you get a powerhouse of phytochemicals, some of which have anti-inflammatory effects," says Melanie Polk, director of nutrition education at the American Institute for Cancer Research in Washington, D.C.

An easy way to up your phytochemicals is to select foods that are deeper shades of colors than you already eat, Polk says. For salad greens, choose the darker spinach over iceberg; grab a ruby strawberry instead of a banana.

For a simple way to eat more plant-based foods, Polk suggests using your dinner plate as a measuring tool. Ideally, two-thirds of the plate should be covered with plant-based foods, including fruit, vegetables, whole grains and beans, she explains. The remaining one-third can be filled with lean animal protein, like a chicken breast or fish fillet. Consider eating more anti-inflammatory herbs, like ginger and turmeric, and augmenting your diet with antioxidant supplements.

4. CUT BACK ON WHEAT AND DAIRY: Not heeding food intolerances and sensitivities is a one-way ticket to chronic inflammation, and no two foods are bigger triggers than dairy and wheat. For →

people who suffer from lactose intolerance or celiac disease (gluten sensitivity), the stomach treats dairy and wheat products as hostile invaders. Often it only takes a bite of bread or a spoonful of ice cream to kick the immune system into high gear.

5. SAY NO TO SUGAR: Sugary foods can also be a problem, especially when eaten between meals, since they cause a surge in blood-sugar levels. To regain balance, the pancreas releases a rush of insulin, which in turn activates the genes involved in inflammation. This biochemical roller coaster is thought to contribute to the onset of type 2 diabetes. “When I’m trying to quell people’s inflammation, I make sure they knock out refined grains and refined sugars,” says LaValle. “You’ve got to get rid of the inflammatory chemistry.”

GET A MOVE ON

Although the role of exercise in staving off chronic inflammation is less well documented than dietary changes, experts still tout physical activity as one of the best ways to keep inflammation at bay. The best part? It doesn’t matter how you move — just get out and go. The indirect results of exercise on inflammatory diseases are bountiful.

Running for an hour or more per week lowers a man’s risk of developing heart disease by 42 percent, according to the *Journal of the American Medical Association* (Oct. 23, 2002). People who exercise regularly are also less likely to be overweight, which lowers the odds of suffering from an inflammation-related illness.

Exercise also may directly muffle inflammation. In studies, both aerobic and nonaerobic exercise have been shown to lower levels of C-reactive protein, or CRP (the body’s marker for inflammation). The lower the body’s CRP, the less inflammation is present.

In a recent study published by the American Heart Association, researchers at the Cooper Institute in Dallas recruited 722 men to observe how fitness affects inflammation. The men’s fitness levels were measured by how long they could walk on a treadmill at gradually rising inclines. Inflammation levels were calcu-

lated by performing blood tests for CRP.

In the end, researchers saw a clear trend toward lower CRP levels among those men who aced the treadmill test and higher CRP levels among those who struggled. Among the men in the lowest fitness group, 49 percent had dangerously high CRP scores. Conversely, only 16 percent of those in the highest fitness group had elevated CRP levels.

The rub is that scientists aren’t sure exactly how exercise diffuses inflamma-



Although the role of exercise in staving off chronic inflammation is less well documented than dietary changes, experts still tout physical activity as one of the best ways to keep inflammation at bay.

tion. One theory is that exercise goads the body into making more antioxidants, which then seek and destroy free radicals associated with prolonged inflammation. William Joel Meggs, MD, PhD, author of *The Inflammation Cure* (McGraw-Hill, 2004), believes exercise may fool the body into thinking it’s younger than it is. “If the body senses it has a biological need to stay healthy, it will produce more antioxidants to control inflammation and slow the aging process,” he says.

For more on how and why to exercise as you age, see “Power Aging” (July/August 2004), available in the archives at experiencelife.com.

To maximize the anti-inflammatory properties of exercise:

MAKE IT A HABIT: Aim for 30 minutes daily of moderate physical activity, such as walking, running, swimming or even yard work. Remember, a little each day is more beneficial than squeezing in a week’s worth of exercise on the weekend.

MIX AND MATCH: For your best shot at lowering CRP levels, get a mixture of

both aerobic exercise, such as walking, running or riding a bike, and moderate weightlifting, either at a gym or with small hand weights at home.

DON’T OVERDO IT: If you find yourself hobbled for days after each trip to the gym, dial down your workout. An overzealous workout can leave muscles and joints sore, which may ultimately fuel the inflammatory fire instead of quell it.

RECRUIT YOUR MIND: “Mental states are important,” says Meggs. “We know that angry, hostile people have higher CRP levels than people who keep their cool.” The thinking goes that cortisol, a stress hormone, triggers the body to release a host of chemicals that contribute to the inflammatory cascade. Activities that calm the mind, such as meditation and guided imagery, lower CRP levels, he says. Better yet, try combining a meditative focus with physical movement in practices like yoga, tai chi or qigong. (For more on this topic, see “Emotional Biochemistry” (July/August 2004) available in the archives at experiencelife.com.)

Squelching chronic inflammation with diet and exercise is in many ways a no-brainer. Certainly health experts have touted much of this same advice (less junk food, more vegetables and regular exercise) for years.

But who knows, maybe understanding the inflammation connection will be enough to convince more folks to straighten up and fly right — particularly if keeping a lid on inflammation turns out to be the secret of healthy aging, or wellness in general, as Meggs suggests. “Inflammation may well turn out to be the elusive Holy Grail of medicine,” he notes, “the single phenomenon that holds the key to sickness and health.” ☛

Catherine Guthrie is a Bloomington, Ind.-based writer and a contributing editor to Experience Life.

Take the CRP Test

Do you have inflammation, or will you in the near future? There's a simple way to find out – with a CRP blood test. Here's how it works: A marker called C-reactive protein (CRP) measures inflammation in the blood. As inflammation creeps up, so do CRP levels. Test results can range from 1.0 to 4.0 mg/L (milligrams to liters) and up. A CRP level below 1.0 mg/L is best, 1.0 to 3.0 mg/L is moderate and above 3.0 mg/L means there is a high risk for inflammation. (High CRP levels are often found in patients who already have autoimmune disease and cancer.)

Another advantage of a CRP test is that it can signal a warning for possible heart disease even if you don't possess any telltale physical symptoms. The CRP test is not definitive, although studies have shown it to be valuable in predicting heart disease in both men and women. The test costs between \$25 and \$35 and can be performed in a doctor's office. Ask your physician for more information.

Resources

BOOKS

Stop Inflammation Now: A Step-by-Step Plan to Prevent, Treat, and Reverse Inflammation – The Leading Cause of Heart Disease and Related Conditions by Richard M. Fleming, MD (Putnam Publishing, 2003)

The Inflammation Syndrome: The Complete Nutritional Program to Prevent and Reverse Heart Disease, Arthritis, Diabetes, Allergies, and Asthma by Jack Challem (John Wiley & Sons, 2003)

The Inflammation Cure: How to Combat the Hidden Factor Behind Heart Disease, Arthritis, Asthma, Diabetes, Alzheimer's Disease, Osteoporosis, and Other Diseases of Aging by William Joel Meggs, MD, PhD (McGraw-Hill, 2004)