



**MOTHER EARTH NEWS**

# Natural Health

## SPECIAL COLLECTION

- Ways to Prevent and Treat Colds and Flu
- Herbal Remedies for Common Ailments
- Green, Nontoxic Cleaning Recipes



# 19 Ways to Prevent and Treat COLDS & FLU

Stay well this winter with these proven strategies for fending off and bouncing back from colds and flu.

By Megan Hirt

**T**he telltale scratchy throat. Miserable nasal congestion. Lethargy tinged with aches and chills.

We all know the signs of a cold or flu settling in, about to derail us—however temporarily—from our day-to-day lives. If your first thought when cold or flu symptoms arise is to reach for an over-the-counter formula,

consider this: In the United States, we spend billions every year trying to knock out these maladies, but most of that money goes to treatments that only suppress symptoms and do little to spur healing.

With the following preventive measures and simple, natural cold and flu remedies, you can save money, take control of your health, and trim your time spent feeling under the weather this cold and flu season.

## Cold and Flu Prevention Strategies

Colds and flu spread primarily via droplets released in the air when someone who is ill coughs, sneezes or talks, and via surface contact (touching something a sick person has touched). The surest natural way to lessen your odds of falling ill is to tweak some of your habits.

**Cough and Sneeze Into Your Elbow.** Instead of covering your cough with your hand, turn your head and cough into your elbow, which will sequester a virus just as well. Your elbow, however, is far less likely than your hands to come in contact with people or surfaces.

**Wash Up Often.** The more frequently you wash your hands, the lower your risk of becoming sick. Remember: Colds and flu are caused by *viruses*—not bacteria—so banking on antibacterial soap as a safeguard against colds and flu won't be effective. Studies have shown that washing your hands

**Soup's on!** A warm, hearty soup packed with cold- and flu-fighting foods can be both comforting and curative.



with an antibacterial soap is no better at preventing infectious illnesses than scrubbing with plain soap and water. Moreover, there's mounting evidence that triclosan—the main active ingredient in many antibacterial soaps—may facilitate the growth of resistant bacteria.

**Hands Off Your Face.** A 2008 study from the University of California, Berkeley found that the typical person makes the hand-to-face connection an average of 16 times per hour. If you refrain from touching your eyes, nose and lips, you drastically reduce the likelihood of a virus entering your body.

**Avoid Touching Surfaces Others Touch.** Encourage your workplace to outfit bathroom doors with foot-operated openers—try the StepNpull, [www.StepNpull.com](http://www.StepNpull.com)—that allow for a hands-free exit. Block contact with faucets, door handles and other heavily trafficked surfaces in public restrooms by cloaking your grip in a paper towel.

**Consider Copper Surfaces.** Copper and copper alloys (brass, bronze) have inherent antimicrobial properties that make them capable of reducing the spread of infection. A 2009 study from Selly Oak Hospital in England found that frequently touched items in a hospital setting that were made of copper—including grab handles, door push plates and toilet seats—harbored up to 95 percent fewer microorganisms compared with the same items made of standard materials such as stainless steel. Numerous follow-up studies of copper's antiviral properties indicate copper surfaces could be an effective means of reducing the spread of colds and flu—and even superbug bacteria such as MRSA—if this prevention tactic were widely adopted. Check out copper products for your home or business at [www.AntimicrobialCopper.com](http://www.AntimicrobialCopper.com).

**Get Regular Exercise.** While colder weather may trigger an urge to curl up in the sedentary comfort of a blanket, moving your body will actually boost its immune function. In a 2006 study, researchers at the University of Washington enrolled 115 women in either a weekly 45-minute stretching session or 45 minutes of moderate-intensity exercise five days a week. After 12 months, the exercisers had developed significantly fewer colds than the stretchers did. You needn't necessarily carve out time for jogging or the like, either: Everyday



chores such

**Proper hand hygiene: Scrub with water (warm or cold) and plain soap for at least 20 seconds.**

as raking leaves or shoveling snow can count as moderate-intensity exercise.

## Herbs for Preventing Colds and Flu

Scientific research supports the use of the following herbs to help stave off colds and flu. (See next page for recommended resources for determining dosage, instructions for making herbal teas, infusions and tinctures, and more.)

**Garlic (*Allium sativum*).** Garlic's long and storied history of healing includes earning high marks as an antiviral, and it's particularly



valuable for warding off colds and helping open sinuses. Crushing or cutting garlic cloves generates a sulfur compound known as *allicin*, which has antiviral, antibacterial and anti-fungal properties and is oft-credited as the star component that gives garlic its all-around stellar healing repertoire. *Allicin* is available only from raw garlic, however, so choose a preparation that calls for it raw, or add garlic at the end of cooking to tap its full medicinal power.

**Ginseng (*Panax ginseng*, *P. quinquefolius*).** In a 2005 study, Canadian researchers gave 279 adults either a daily placebo or 400 milligrams a day of ginseng. Four months later, the ginseng group had contracted considerably fewer colds. University of Connecticut researchers repeated the study and arrived at the same conclusion, deeming ginseng “a safe, natural means for preventing acute respiratory illness.” In his book *The Green Pharmacy*, Dr. James A. Duke suggests a daily dose of about 1 teaspoon ginseng steeped in a cup of boiling water to make a tea.

**Eleuthero (*Eleutherococcus senticosus*).** Also known as “Siberian ginseng,” this herb isn't related to ginseng but has similar effects, including immune-boosting antiviral action. Take daily as a tea of about 1 teaspoon eleuthero root steeped in 1 cup boiling water.

**Mushrooms.** Maitake mushrooms (*Grifola frondosa*), reishi mushrooms (*Ganoderma lucidum*) and shiitake mushrooms (*Lentinula edodes*) rev up the immune system to defend against a number of viruses. Maitake mushrooms aren't easy to find fresh, so try ordering them dried ([www.OregonMushrooms.com](http://www.OregonMushrooms.com) is one mail-order source). Reishi mushrooms are rather unpleasant-tasting and aren't used as a food (take them as capsules instead), but go ahead and eat your fill of robust, scrumptious shiitakes.

**Astragalus (*Astragalus membranaceus*).** This antiviral and immune-strengthening herb has been a principal player in traditional Chinese medicine for millennia. In *Herbal Antibiotics*, author Stephen Harrod Buhner recom-

**Could garlic be the tastiest medicine known to planet Earth? We think so.**

mends a daily pot of tea containing 2 to 3 ounces astragalus root. Or, enlist astragalus along with garlic as part of an immune-enhancing soup broth, Buhner suggests.

## Natural Cold and Flu Remedies

Should your prevention measures fall short—and they likely will at some point—try these natural means to lessen a cold or flu's impact and duration.

**Chicken Soup.** In a laboratory study published in 2000, University of Nebraska researchers found this centuries-old remedy can indeed relieve symptoms of an upper respiratory tract infection. Specifically, chicken soup eased the inflammation of throat cells that can cause cold symptoms. The researchers weren't able to identify a precise ingredient responsible for the alleviation, but they theorized a combination of the soup's components working together gave it its benefit. The recipe tested featured chicken broth, onions, sweet potatoes, parsnips, turnips, carrots, celery stems, parsley, salt and pepper. Many veggies, particularly onions, have anti-inflammatory properties.

**Ginseng.** In addition to ginseng's value in cold prevention, research from the University of Connecticut (mentioned previously) also showed ginseng cut severity of cold symptoms in half.

**Ginger (*Zingiber officinale*).** Within this knobby, pungent rhizome reside nearly a

**A honey of a remedy:** Add this sweet and inexpensive healing agent to your warm beverages.



Get a "hand" from ginger this winter: Along with its cold-combating capabilities, ginger is also a well-documented stomach soother.

dozen antiviral compounds. Notably, ginger contains chemicals known as *sesquiterpenes* that specifically fight rhinoviruses, the leading cause of the common cold. Dr. Duke recommends concocting a soothing ginger tea by pouring boiling water over 2 tablespoons of fresh, shredded ginger root.

Herbalist Rosemary Gladstar blends ginger with another time-honored healer—honey (keep reading)—for the Ginger Lemon-Aide recipe in her book *Medicinal Herbs: A Beginner's Guide*. To make, combine 4 to 6 tablespoons freshly grated ginger root with 1 quart cold water and bring to just a boil. Remove from heat and let steep for 10 to 15 minutes. Strain ginger from tea, and stir in the juice of 1 to 2 fresh lemons along with honey to taste.

**Juniper (*Juniperus spp.*)** Juniper berries boast a powerful antiviral compound known as *deoxypodophyllotoxin*. For

upper respiratory tract infections, Buhner advises turning to the woody-smelling essential oil of juniper. Place eight to 10 drops of juniper essential oil in water in a 1-ounce nasal spray bottle. Use four to six times per day, shaking the mixture before each use.

**Hot Drinks and Honey.** Any warming drink can help soothe a sore throat, suppress a cough, and calm the overall commotion of a cold or flu. Honey coats the throat and relieves irritation while its antioxidant and antimicrobial properties go to work fighting viral infections. Try Buhner's Colds and Flu Tea: 2 tablespoons ginger juice, juice of 1/4 lime, pinch cayenne pepper, 1 tablespoon honey, and hot water.

**Horehound (*Marrubium vulgare*), Licorice (*Glycyrrhiza glabra*) and Slippery Elm (*Ulmus rubra*).** Each of this trio provides re-



HONEY: DREAMTIME; GINGER: FOTOLIA

## RESOURCES

### DOSAGE RECOMMENDATIONS

***Herbal Antibiotics*** by Stephen Harrod Buhner

### ***The Complete German Commission E***

***Monographs*** from the American Botanical Council

### MORE INFORMATION

***Medicinal Herbs: A Beginner's Guide*** by Rosemary Gladstar

***The Green Pharmacy*** by James A. Duke

### "Herbal Teas, Herbal Infusions and Herbal

Tinctures" by Rosemary Gladstar

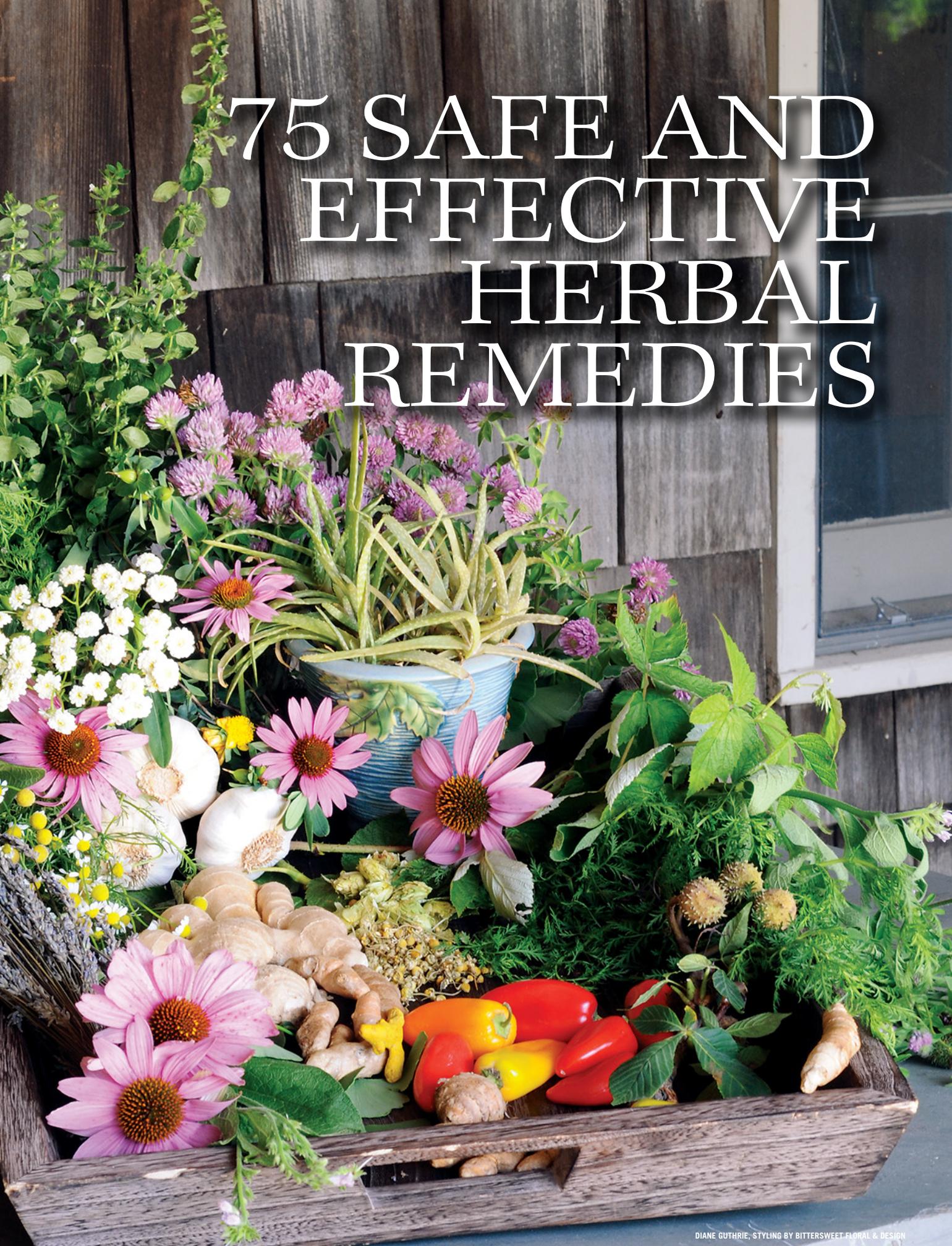
Go to <http://goo.gl/CJgQZ>

### HERB SOURCES

**Mountain Rose Herbs:** 800-879-3337; [www.MountainRoseHerbs.com](http://www.MountainRoseHerbs.com)

**Sage Woman Herbs:** 888-350-3911; [www.SageWomanHerbs.com](http://www.SageWomanHerbs.com)

# 75 SAFE AND EFFECTIVE HERBAL REMEDIES



**M**y wife is an M.D. trained in pharmaceutical medicine. She prescribes drugs every day, but also recommends medicinal herbs. In our medicine cabinet, we stock drugs and herbs, but we use more of the latter. When we catch colds, we prefer echinacea and andrographis (immune-boosting herbs proven to speed recovery), ginseng (ditto), licorice root (for sore throat), tea or coffee (caffeine helps relieve stuffed nose and chest congestion), eucalyptus lozenges (for cough), and pelargonium (if post-cold bronchitis develops).

Thirty years ago, when I started writing about medicinal herbs, the vast majority of M.D.s (my wife included) never recommended herbs over drugs. Today, doctors are increasingly open to recommending nondrug alternatives given reasonable evidence of safety and effectiveness.

Unfortunately, many medical authorities still disparage medicinal herbs. Critics make four accusations: Herbs are ineffective, unsafe, unregulated and, when they work, they're not as strong as drugs.

Ineffective? Hardly. As I document in my book, *The New Healing Herbs*, thousands of studies confirm the effectiveness of medicinal herbs for hundreds of conditions.

Unsafe? Like drugs, medicinal herbs can cause harm. Anything that's pharmacologically active can. To ensure safety, purchase a guide that emphasizes safety, such as my book or the American Botanical Council's *ABC Clinical Guide to Herbs*, or check out the Natural Medicines Comprehensive Database ([www.NaturalDatabase.com](http://www.NaturalDatabase.com)).

Anyone who calls herbs hazardous is totally misinformed. Every year the American Association of Poison Control Centers (AAPCC) compiles statistics on accidental deaths from drugs, herbs, vitamins and other supplements. The AAPCC's 2008 report records 1,756 accidental poisoning deaths. How many were attributable to medicinal herbs? Zero. In every accidental death caused by a pharmacological agent, the culprit was a pharmaceutical. And it's been that way for many years. Herbs are safer than drugs.

University of Toronto researchers combed 30 years of medical literature (1966 to 1996) for reports of drug side effects in hospital patients. Extrapolating from the 39 most rigorous studies, they estimated that drug side

## Treat dozens of common ailments naturally.

by Michael Castleman

effects kill an astonishing 106,000 U.S. hospital patients per year and cause 2.2 million serious, nonfatal problems. This makes drug side effects the nation's fourth leading cause of death. The true number of drug-caused injuries is undoubtedly higher; this study focused solely on hospital patients, not the public. Note: These deaths didn't result from medical errors; they occurred when drugs were administered as approved by the Food and Drug Administration (FDA).

Unregulated? Before approving new drugs, the FDA requires drugmakers to prove them safe and effective. Such tests aren't required of herbs, leading to claims that herbs are unregulated and, by implication, unsafe. But as we've seen, the supposedly stringent regulation of drugs hasn't kept them from causing great harm.

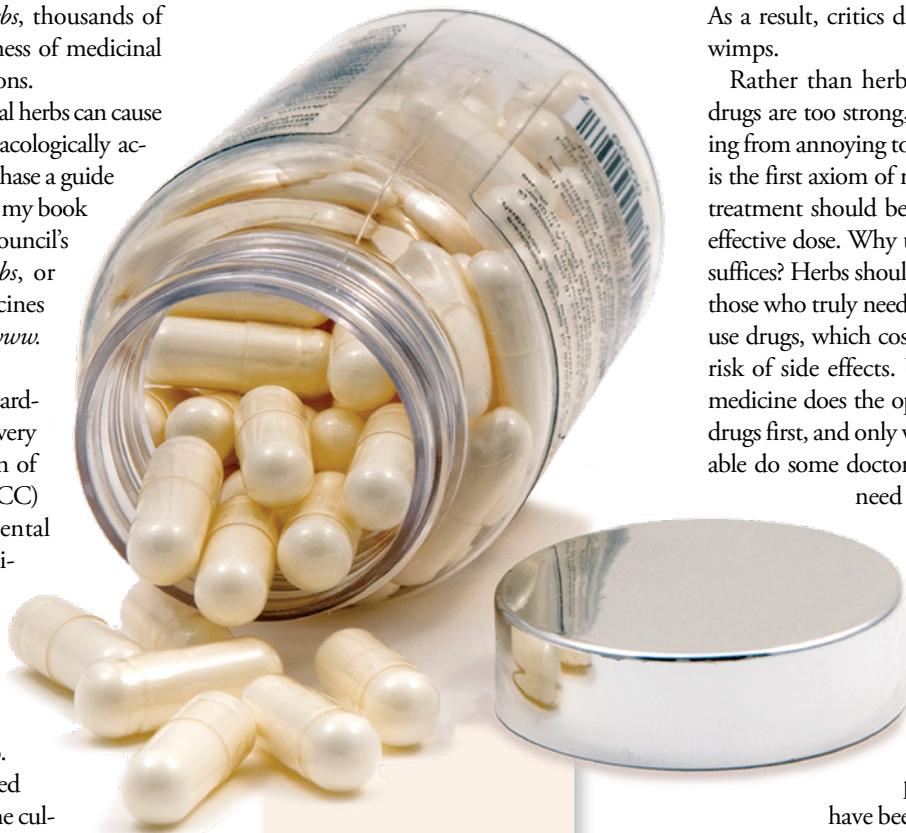
In addition, preapproval studies typically involve only a few thousand people. Many side effects—some serious—only turn up in one user in 10,000 to 50,000, or more. These problems don't emerge until the drug is widely used by people unaware that they are guinea pigs. Because so many new side effects turn up during the five years after approval, the FDA requires drugmakers to rewrite the warning labels of half of new drugs. Yes, drugs are regulated more stringently than herbs, but regulation doesn't guarantee safety. Hundreds of studies show that, when compared head-to-head with herbs, drugs almost always cause more side effects. The vast majority of medicinal herbs have been used for centuries, standing the test of time.

Not as strong? Dose for dose, yes, herbs aren't as strong as drugs. Willow bark contains a natural form of aspirin, but the standard dose (1 to 2 cups of tea or 1 to 2 teaspoons of tincture) doesn't relieve pain as well as a standard dose of aspirin, ibuprofen (Motrin), acetaminophen (Tylenol), or naproxen (Aleve). As a result, critics dismiss herbs as medicinal wimps.

Rather than herbs being too weak, many drugs are too strong, causing side effects ranging from annoying to insufferable. Do no harm is the first axiom of medicine. This means that treatment should begin at the lowest possible effective dose. Why use a bulldozer if a broom suffices? Herbs should be prescribed first. Only those who truly need stronger medicine should use drugs, which cost more and have a greater risk of side effects. Unfortunately, American medicine does the opposite. Doctors prescribe drugs first, and only when the drugs are intolerable do some doctors suggest herbs. We don't need medicine that's stronger.

We need medicine that's smarter. For many common ills, herbs are cheaper and smarter.

If you'd like to try herbs instead of drugs, the list on the next page is a good place to start. These herbs have been included because of the strong clinical evidence of their efficacy.



Drug side effects are the nation's fourth leading cause of death!

ISTOCKPHOTO

Michael Castleman is one of the nation's leading health writers, according to *Library Journal*.

# Herbal Remedies for Common Ailments

Ailment	Herb
<b>Acne</b>	Calendula, aloe, tea tree
<b>Alcoholism</b>	Evening primrose, kudzu
<b>Allergy</b>	Chamomile
<b>Alzheimer's disease</b>	Ginkgo, rosemary
<b>Angina</b>	Hawthorn, garlic, willow, green tea
<b>Anxiety and stress</b>	Hops, kava, passionflower, valerian, chamomile, lavender
<b>Arteriosclerosis</b>	Garlic
<b>Arthritis</b>	Capsicum, ginger, turmeric, willow, cat's claw, devil's claw
<b>Asthma</b>	Coffee, ephedra, tea
<b>Athlete's foot</b>	Topical tea tree oil
<b>Attention-deficit disorder</b>	Evening primrose oil
<b>Bad breath</b>	Parsley
<b>Boils</b>	Tea tree oil, topical garlic, echinacea, eleutherococcus, ginseng, rhodiola
<b>Bronchitis</b>	Echinacea, pelargonium
<b>Burns</b>	Aloe
<b>Cancer</b>	Bilberry, blackberry, cocoa (dark chocolate), green tea, garlic, ginseng, maitake mushroom, pomegranate, raspberry, reishi mushroom
<b>Cankers</b>	Goldenseal
<b>Colds</b>	Echinacea, andrographis, ginseng, coffee, licorice root (sore throat), tea (nasal and chest congestion)
<b>Congestive heart failure</b>	Hawthorn

Ailment	Herb
<b>Constipation</b>	Apple, psyllium seed, senna
<b>Cough</b>	Eucalyptus
<b>Depression</b>	St. John's wort
<b>Diabetes, Type 2</b>	Garlic, beans (navy, pinto, black, etc.), cinnamon, eleutherococcus, flaxseed, green tea
<b>Diabetic ulcers</b>	Comfrey
<b>Diarrhea</b>	Bilberry, raspberry
<b>Diverticulitis</b>	Peppermint
<b>Dizziness</b>	Ginger, ginkgo
<b>Earache</b>	Echinacea
<b>Eczema</b>	Chamomile, topical borage seed oil, evening primrose oil
<b>Fatigue</b>	Cocoa (dark chocolate), coffee, eleutherococcus, ginseng, rhodiola, tea
<b>Flu</b>	Echinacea, elderberry syrup (see also "Colds")
<b>Gas</b>	Fennel, dill
<b>Giardia</b>	Goldenseal
<b>Gingivitis</b>	Goldenseal, green tea
<b>Hay fever</b>	Stinging nettle, butterbur
<b>Herpes</b>	Topical lemon balm, topical comfrey, echinacea, garlic, ginseng
<b>High blood pressure</b>	Garlic, beans, cocoa (dark chocolate), hawthorn
<b>High blood sugar</b>	Fenugreek
<b>High cholesterol</b>	Apple, cinnamon, cocoa (dark chocolate), evening primrose oil, flaxseed, soy foods, green tea
<b>Hot flashes</b>	Red clover, soy, black cohosh
<b>Impotence</b>	Yohimbe

Ailment	Herb
<b>Indigestion</b>	Chamomile, ginger, peppermint
<b>Infection</b>	Topical tea tree oil, astragalus, echinacea, eleutherococcus, garlic, ginseng, rhodiola
<b>Insomnia</b>	Kava, evening primrose, hops, lemon balm, valerian
<b>Irregular heartbeat</b>	Hawthorn
<b>Irregularity</b>	Senna, psyllium seed
<b>Irritable bowel syndrome</b>	Chamomile, peppermint
<b>Lower back pain</b>	Thymol, carvacrol, white willow bark
<b>Menstrual cramps</b>	Kava, raspberry, chasteberry
<b>Migraine</b>	Feverfew, butterbur
<b>Morning sickness</b>	Ginger
<b>Motion sickness</b>	Ginger
<b>Muscle pain</b>	Capsicum, wintergreen
<b>Nausea</b>	Ginger
<b>Premenstrual syndrome</b>	Chasteberry, evening primrose
<b>Ringing in the ears</b>	Ginkgo
<b>Seasonal affective disorder</b>	St. John's wort
<b>Shingles</b>	Capsicum
<b>Sore throat</b>	Licorice, marshmallow, mullein
<b>Stuffy nose</b>	Echinacea
<b>Tonsillitis</b>	Goldenseal, astragalus, echinacea
<b>Toothache</b>	Willow, clove oil
<b>Ulcers</b>	Aloe, licorice
<b>Varicosities</b>	Bilberry, horse chestnut
<b>Yeast infection</b>	Garlic, goldenseal, Pau D'arco

# 13 HOMEMADE CLEANING RECIPES

by Mindy Pennybacker

Make your own household cleaners using safe, simple and inexpensive ingredients.

Having a clean home doesn't have to mean dousing your space with chemical-laden cleaning products. You can easily make safe, effective and inexpensive cleaners for every room of your home using basic items you likely already have on hand.

When it comes to whipping up the cleaning solutions here, feel free to improvise with proportions. The process is much like cooking a favorite dish: Rely on instinct, and use trial and error to refine. You'll have fun and enjoy the freedom of trying out different essential oils to find your preferred scent.

## Shopping List

- **Baking soda:** deodorizing, scrubbing, whitening
- **Borax:** deodorizing, disinfecting, removing stains (For a discussion of the possible health effects of borax, go to [goo.gl/CnabD](http://goo.gl/CnabD).)
- **Hydrogen peroxide:** disinfecting, removing stains
- **Lemon:** deodorizing, removing stains
- **Liquid soap:** sudsing power
- **Plant essential oils:** chemical-free fragrance
- **Washing soda:** cutting grease, removing stains, scrubbing
- **White vinegar:** disinfecting, removing stains

### All-Purpose Cleaner

Mix 1/2 cup of borax with 1 gallon of hot water until borax dissolves. Spray or mop onto any nonwood surface. Wipe clean.

### Toilet Bowl Cleaner

Scrub with 1/2 cup of borax to brighten and disinfect. For frequent maintenance, brush the bowl with baking soda and let it sit for a bit before flushing. Add white vinegar for an extra stain-lifting fizz.

### Grout Cleaner

To kill mildew and whiten grout without chlorine, combine baking soda with hydrogen peroxide or white vinegar to make a paste. Apply to grout and let sit at least 30 minutes, then scrub.

### Soft Scrub

Use this no-scratch, chlorine-free paste on enamel or porcelain.

1 cup baking soda  
Warm water  
2 to 3 drops liquid soap

Combine baking soda with enough water to form a paste. Add liquid soap. Apply to surfaces and let sit at least 5 minutes. Scrub with a nonabrasive sponge, rinse and wipe off residue.



# DIY Dishwashing Solutions

Mindy Pennybacker is the author of *Do One Green Thing: Saving the Earth Through Simple, Everyday Choices*



## Herbal Liquid Dishwashing Blend

Enjoy a leafy-fresh fragrance as you scrub.

*liquid soap*

*10 drops lavender essential oil*

*8 drops rosemary essential oil*

*4 drops eucalyptus essential oil*

Fill a clean, 22-ounce plastic squirt bottle with liquid soap (diluted according to directions if using concentrate). Add the essential oils. Shake the bottle before each use. Add 1 to 2 tablespoons of the liquid to dishwater and

wash as usual.

## Citrus Sparkle Automatic Dishwasher Powder

Citric acid (sometimes labeled “sour salt”) is available in powdered form from many health food stores, stores that cater to homebrewers of beer and wine, soap-making supply outlets, and various online sources.

*2 cups washing soda*

*2 cups borax*

*6 tbsp citric acid powder*

*25 drops grapefruit essential oil*

Combine all ingredients in a plastic container or tub and mix completely. Use 2 tablespoons of the blend per load of dishes.

## Super-Easy Automatic Dishwasher Powder

Because it stores so well, this formula can be doubled or made in bulk.

*2 cups washing soda*

*1 cup borax*

*1 cup baking soda*

Combine all ingredients and store in a plastic container. To use, add about 2 tablespoons to the soap compartment of your dishwasher. If you find your dishes developing residue, reduce this amount to 1½ tablespoons.

## Glass Cleaner

Let the sunshine in sans toxic, ammonia-based products.

*1 tbsp lemon juice or 1/4 cup white vinegar*

*2 cups water*

*3 to 4 drops liquid soap (optional)*

Mix ingredients, then spray or wipe on. For the best streak-free shine, use old newspaper to wipe clean (go to [goo.gl/c52vK](http://goo.gl/c52vK) for details on this technique).

## Simple Disinfecting

Avoid cleaners that contain chlorine bleach and toxic antibacterial agents such as triclosan and triclocarban. The American Medical Association advises against using antibacterial products, as these promote the proliferation of antibiotic-resistant bacteria and may in fact be no more effective than cleaning with regular soap and water. A wipe-down with hydrogen peroxide or white vinegar will provide adequate disinfection on kitchen and bathroom surfaces.

## Floor and Wall Cleaner

Use this on any floor—including wood—and to wash sticky or sullied walls.

*1 cup white vinegar*

*1 gallon hot water*

*1 tbsp to 1/4 cup liquid soap (optional)*

*1 to 2 tbsp pine or lemon oil (optional)*

Mix white vinegar with water and clean floor or walls using a mop or damp rag. For extra cleaning power, add liquid soap. Add pine or lemon oil to condition unlaminated wood floors (essential oil of lavender or rosemary are less intense alternatives). If you use liquid soap, follow the cleaner with a clean-water mop.

## A Better Way to Unclog Drains

Use a plumber's snake or an untwisted coat hanger to pull out as much gunk as possible from the clogged drain. Pour 1/2 cup of baking soda or washing soda down the drain. Gradually add 1/2 cup of white vinegar. Let the mixture fizz and dissolve. Carefully pour in boiling water from a tea kettle. Wait 30 minutes and repeat as necessary. Before calling a plumber, let things cool off and snake again.

## Fume-Free Oven Cleaner

Bypass caustic, lye-based cleaners and still make your oven sparkle.

*1 cup baking soda*

*1/4 to 1/2 cup washing soda*

*Hot water*

*1 tbsp liquid soap*

*Few drops white vinegar*

Make sure oven is off and totally cool (no need to disconnect power). Wipe off surface soot and any fresh spills. Combine dry ingredients (for greasy ovens, use 3/4 cup of washing soda) and gradually add hot water to make a thick but malleable paste. Add liquid soap. Add white vinegar to the mixture (watch it fizz!). Coat all oven surfaces and let sit overnight. Wipe off with warm water.

## The Real Deal Air Freshener

Many commercial air fresheners contain hormone-disrupting chemicals known as phthalates. The healthiest alternative? Fresh air! Open your windows and place a dish of odor-absorbing baking soda or borax on kitchen and bathroom counters (out of reach of children and pets).

# PLASTICS:

## WHAT'S DANGEROUS, WHAT'S NOT

FROM TOYS TO WATER BOTTLES,  
HERE'S HOW TO CHOOSE SAFE  
PLASTIC PRODUCTS.

by Linda B. White, M.D.

**Y**ou've been out—working, exercising, shopping. You open the car door and slip into the ovenlike interior. Throat dry, you reach for the water bottle that's been sitting in the cup holder all day. It's warm. But at least it's water, right? Water, yes, albeit water potentially spiked with chemicals that migrated out of the plastic—chemicals that aren't good for your health.

The latest scientific research has given us a lot of good reasons to think carefully about how we use plastics. The main concern with several types of plastic is that they contain endocrine disruptors—substances that, when taken into our bodies, alter normal hormonal function. Over the past several years, scientists and the media have struggled to find answers to mysteries such as precocious puberty, declining fertility rates in otherwise healthy adults, hyperactivity in kids, the fattening of America, and the persistent scourges of prostate cancer and breast cancer. Although multiple factors play a role in all of these conditions, one recurrent theme is the brew of endocrine disruptors infiltrating our lives.

### Effects of Endocrine Disruptors

Endocrine disruptors (which are now widespread in food, water, soil and even the air we breathe) include a long list of chemicals such as dioxins, cadmium, parabens, bisphenol A, phthalates, polychlorinated biphenyls (PCBs), agricultural chemicals, polybrominated flame retardants, and some of the active ingredients in sunscreens.

Many of these chemicals cause problems because they can mimic the action of natural estrogen. These foreign estrogens (also known as xenoestrogens) can upset normal hormonal balance, stimulate the growth and development of reproductive tumors (breast, uterine, prostate), impair fertility, and disrupt pregnancy. Worse, many can cross the placenta to affect the fetus and get into breast milk. Chemicals such as phthalates have an antiandrogenic effect, meaning they interfere with testosterone and other hormones responsible for male sex characteristics. Exposure to these agents during fetal life and early childhood can derail normal sexual development and heighten the risk for diseases that don't become apparent until adulthood, such as cancer.



BPA can leach into food when plastic food containers are heated. A better choice is to warm and store food in ceramic or glass containers.

## Problems with BPA

One of the most troubling endocrine disruptors is a common ingredient in plastic called bisphenol A (commonly called BPA). According to Laura N. Vandenberg, who holds a doctorate in cell, molecular and developmental biology and works at the Center for Developmental and Regenerative Biology at Tufts University, “BPA is one of the highest volume chemicals produced worldwide, with over 6 billion pounds produced each year.”

Used to produce polycarbonate plastics and epoxy resins, BPA is found in many drinking containers, the lining of most food and beverage cans (including soda cans), bottle caps, plastic cutlery, plastic food storage containers, toys, dental sealants, some dental composites, water pipes, eyeglass lenses, and more. Polycarbonate is often blended with other plastics to create products such as mobile phone cases, car parts, electronic equipment, medical equipment and household items. Because BPA is in printer ink, newspapers and carbonless receipts, most recycled paper contains it, including paper towels and paper used to contain food.

The problem is that BPA migrates from the plastic into neighboring substances such as food, water and saliva. Heat, contact with acidic (think vinegar or soda) and alkaline (think baking soda) substances, and repeated washing of polycarbonate plastics accelerate the process. BPA also leaches into groundwater from plastics piled in landfills. Although most of our intake is dietary, BPA can also be inhaled, and can move across the skin into our blood by means of bath water.

Because it is so pervasive, we all have BPA on board. One study by the Centers for Disease Control and Prevention found BPA in 95 percent of urine samples. It's also present in blood, amniotic fluid, fetal tissues, ovarian fluid and breast milk. Infants and small children take in more BPA than adults because—relative to their size—they breathe, drink and eat more, put everything within reach into their mouths, and don't clear the chemical from their bodies as fast as adults.

Information on the potential dangers of BPA comes mostly from animal research. In lab rats and mice, even low doses during early development alter the reproductive hormone cycles in males and females. Specifically, females have ear-

lier puberty, increased mammary (breast) development, prolonged estrous cycles (the equivalent of menstrual cycles), chromosomal abnormalities in their eggs, and other fertility problems. Males have decreased testosterone levels, fewer and less motile sperm, more abnormal sperm, increased prostate size, and changes reflecting a heightened risk for prostate cancer. In some studies, both males and females tend to weigh more and have more body fat. Exposure during fetal development can alter brain structure and function, and lead to subsequent behavioral changes, such as increased aggressiveness, impaired motor activity, anxious behavior and impaired learning.

Risk assessment reports before 2004—particularly those funded by groups such as the American Plastics Council—dismissed the dangers to humans on the grounds that levels in humans fell short of the concentrations that caused ill effects in test-tube and animal studies.

However, Frederick vom Saal, who holds a doctorate in neurobiology and is a prominent researcher and professor at the University of Missouri, notes that of the 115 low-dose BPA studies published by the end of 2004, 94 found estrogen-like effects in animals. More pointedly, he says, “No industry funded studies have reported significant effects of low doses of BPA, although more than 90 percent of government funded studies have reported significant effects.”

In 2007, the University of North Carolina's Chapel Hill Bisphenol A Expert Panel, which included Vandenberg and 38 other experts, published a report stating that human exposure levels are well within the range that has proven harmful to rats and mice. Furthermore, these adverse effects in lab animal studies mirror health conditions that have been on the rise in humans over the past 50 years: infertility, breast and prostate cancer, type-2 diabetes, obesity, attention

deficit disorder, cardiovascular diseases, autism, and abnormal development of the penis. More research is needed to confirm these correlations.

Despite the Panel's report, the U.S. National Toxicology Program's (NTP) Center for the Evaluation of Risks to Human Reproduction issued a brief in April 2008 that fell short of sounding the alarm. In June 2008, the NTP Board of Scientific Counselors further downgraded some of the potential risks. In a nutshell, the NTP voiced “some concern” for neural and behavioral effects and effects on the prostate gland in fetuses, infants and children at current exposures. For the same age group, they said there is “minimal concern” about effects on the breast and on earlier puberty in girls. For adults, the concern about exposures adversely affecting pregnancy outcomes or the health of reproductive organs was “negligible.”

Among the long list of experts that responded to the NTP brief, the American Academy of Pediatrics said the report's downplaying of the risks, particularly for infants and pregnant women, would falsely reassure the public. Sarah Janssen, science fellow for the Natural Resources Defense Council, responded to the brief more bluntly: “BPA should be considered a hazard to human development and reproduction with clear evidence of adverse effects.”

While the U.S. Food and Drug Administration maintains current levels of BPA are safe for humans, the Canadian government declared BPA toxic in April 2008, triggering a ban on the use of BPA in baby bottles. But in October, a group of scientific advisers to the U.S. FDA rejected the assessment, stating that the agency had ignored crucial studies and employed flawed methods in its research. As the FDA risk assessment continues, some states are proposing legislation that would ban many plastics containing BPA. Read an update on BPA regulation at <http://googl/9joEq>.

## Trouble with Phthalates

Phthalates represent another ubiquitous category of endocrine disruptors. Used to soften plastic, these chemicals pop up in PVC-containing plastic products, including:

Animal studies showing the harmful effects of BPA mirror the rise of many human health problems over the past 50 years, including infertility, autism, obesity, breast and prostate cancer, type-2 diabetes, and attention deficit disorder.

- children's toys
- personal care products (cosmetics, nail polish, hair spray, deodorant, shampoos, body washes, perfumes)
- air fresheners
- insect repellents
- detergents and other cleaning products
- lubricants
- vinyl products (shower curtains, raincoats, vinyl flooring)
- medical equipment (tubing, bags for intravenous fluids, vinyl gloves)
- the plastic in breast pumps
- the outer coating on many pills
- garden hoses
- pool liners
- modeling clay
- food packaging

With respect to pacifiers and baby bottle nipples, most companies have switched to latex- and silicone-based materials in their manufacturing.

Because phthalates aren't tightly bound to plastics, they readily migrate into neighboring substances such as food, water, air and saliva. Phthalates are thus present in our urine, blood, breast milk, saliva, amniotic fluid and seminal fluid.

The biggest health concern is reproductive toxicity—particularly for males. Numerous animal studies link phthalate exposure during fetal development with malformations of parts of the male reproductive system. Reports of ill effects in females aren't as numerous, although higher levels of these chemicals have been associated with early breast development in girls and endometriosis in women. Phthalates in indoor air have been associated with asthma and

## How to Avoid Phthalates

Avoiding phthalates is challenging because manufacturers aren't required to list them as product ingredients.

- Look for "phthalate-free" on the label of personal care products (especially nail polish). For information on product ingredients, check the Campaign for Safe Cosmetics website, [www.SafeCosmetics.org](http://www.SafeCosmetics.org).
- Use fragrance-free detergents, cleansers and personal care products. Artificial fragrances commonly use diethyl phthalate (DEP).
- Avoid products made of vinyl plastic usually labeled as No. 3 (raincoats, shower curtains) and polyvinyl chloride (PVC pipe, other building materials, some lawn furniture, and some children's and pets' toys).

**Note:** In 2007, the Natural Resources Defense Council tested 14 common air fresheners. Although none of them listed phthalates as an ingredient, 12 of the 14 contained these chemicals, including those advertised as unscented or "all natural." To read the report, go to [www.NRDC.org/health/home/airfresheners/contents.asp](http://www.NRDC.org/health/home/airfresheners/contents.asp).



allergic conditions.

In 2005, the European Union banned three phthalate compounds from children's toys and other children's products. California has passed a law limiting exposure to di(2-ethylhexyl) phthalate (commonly known as DEHP). And Minnesota, Maryland, Maine and Oregon have proposed similar legislation. In 2008, Washington state passed the Children's Safe Products Act to protect kids from exposure to lead, cadmium and phthalates.

*You can find links to the reference materials for this article and keep up with new developments at [www.MotherEarthNews.com](http://www.MotherEarthNews.com). Follow FDA reviews and regulation updates at [www.FDA.gov](http://www.FDA.gov).*

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## Keeping BPA Out of Food and Beverages

In addition to the potential health risks, there are many more reasons to reduce your use of plastic food containers, dishes and cutlery. Plastics consume resources that are largely nonrenewable (crude oil and natural gas), their use contributes to needless waste, and their production and degradation create pollution. Here are a few BPA safety tips for food and drink.

- Can the cans. "Canned foods are likely to be the highest contributor to BPA in our diets, not plastics," says Vandenberg. Also, she says parents should buy powdered rather than liquid infant formula, because the former has less exposure to the BPA lining the can.
- If you use plastic wrap, try to find one that doesn't contain BPA. Vandenberg says the trouble is that companies are not required to tell you what's in plastic wrap, adding, "Studies show that many stretch wraps (i.e., Saran Wrap) contain BPA and other endocrine disruptors."
- Warm and store food in ceramic or glass containers. The label "microwave safe" on a plastic food container only means that the plastic won't melt. If the product contains BPA, it will leach into your food faster when warm.
- Make sure baby bottles, pacifiers and toys for infants and toddlers are BPA-free.
- Avoid bottled water, especially in plastic bottles. According to Food & Water Watch, bottled water is more expensive and no safer than tap water. In fact, it is often bottled tap water.
- Use metal or wooden utensils when you cook. Use wooden rather than plastic cutting boards, and clean thoroughly after use.
- Bring your own, BPA-free containers for leftovers and take-away foods.
- Recycle. Plastic containers and packaging are clogging our landfills and leaching endocrine disruptors into groundwater, plus marring the landscape and injuring wildlife.