



AMERICAN COLLEGE  
of Healthcare Sciences™

# WELLNESS GUIDE



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## LAST REVISION

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## INTRODUCTION

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*n.* well•ness (wlns)

The condition of good physical and mental health, especially when maintained by proper diet, exercise, and habits.<sup>1</sup>

All too often, Western health care focuses on illness. At the American College of Healthcare Sciences, we teach a holistic perspective of health. Though focusing on ill health may sometimes be necessary—for instance, to address symptoms that make daily living unbearable—we encourage our students to look at the causes for any manifestations of ill health, not only the symptoms. In addition, we also like to teach each student to focus on the concept of wellness. This handbook is intended to help you do this.

### Why focus on wellness?

Any psychologist will tell you that focusing on a concept is the first step to achieving it. However, how often do we focus on wellness?

Many of us live from day to day, not thinking about our health or body until it begins to ache, a joint twinges, a headache starts. Then we try to remedy the problem.

Wellness is a cumulative concept.

In our view, stress is one of the most harmful issues our bodies have to deal with in the modern world. Stress has been shown to effect our cardiovascular, immune, and endocrine systems, and increases our risk for heart disease, cancer, high blood pressure, and the common cold.

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<sup>1</sup> *The American Heritage® Dictionary of the English Language*, Fourth Edition

## Control

Feeling like we are in control reduces stress in our lives. There are a number of steps for regaining, and retaining that sense of control. One is having the tools we need to achieve wellness.

## Tools for Wellness

This handbook focuses on everyday tools for wellness. Most of these are quite simple. Few of us use these tools as much we could. Note here our phraseology; tools we could use to achieve wellness—not should. By changing out the word *should* to *could*, we immediately feel more in control and empowered.

We will review the following tools for wellness:

1. Nutrition
2. Elimination
3. Exercise
4. Stress reduction

Remember, these tools are not intended to substitute for medical advice. This handbook is designed to help you relish in that delicious feeling of good health and wellness. That zing to your step. That feeling of waking refreshed.

Enjoy!

## WELLNESS PROGRAM

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Wellness is a complete program, involving nutrition, exercise, herbs, the use of supplements and, perhaps most importantly, relaxation.

It is never too late in life (or too early!) to begin your wellness regime.

## NUTRITION

### Key Points

A healthy diet should consist of unprocessed, whole, organic foods. Foods with coloring and preservatives overload our bodies and can accumulate in the tissues. Always make a point of reading labels carefully. It is now possible to buy many products free of preservatives and artificial coloring. Hunt these products out and use them.

Choose foods from the following groups: vegetables, fruits, grains, nuts, and seeds. Aim to have 60% of your diet raw or sprouted to ensure a steady supply of enzymes, the body's activators.

Some foods are known to have a particular effect for retarding aging and will help to prolong vitality and youthfulness. These are: whey powder, soured milks, yogurt (particularly goat's milk), buckwheat, millet, garlic, lecithin, home-made sauerkraut, sourdough bread, pollen, ginseng, sarsaparilla, kelp, selenium, vitamin E, fresh green vegetables, and fruits.

### Nutrition News

#### **Eat more fish and improve your health.**

A study released in August 2003 in the journal *Circulation*, showed that eating more fish was associated with a lowered heart rate and a lower risk of dying from a heart attack. In a study of middle-aged men without known heart disease, those who ate

more fish also had lower blood pressure, lower triglycerides, and higher HDL cholesterol, all factors which have been shown to decrease your risk for heart attack and stroke. The researchers speculated that the effect could be due to the ability of fish to increase DHA levels, an important essential fatty acid. Those who eat more fish are also more likely to make better lifestyle choices, such as exercising, drinking less alcohol, and quitting smoking. When the study was controlled for these variables, the heart rate decrease and DHA level increase were still significant. <sup>2</sup>

Regular fish intake may also reduce the risk of stroke<sup>3</sup> in middle-aged women, according to a *JAMA* report.<sup>4</sup> This relationship, which could be a result of inhibition of platelet aggregation, lowered blood viscosity, or suppressed formation of leukotrienes, has been found in previous studies as well.

An analysis of data from the 14-year Nurses' Health Study<sup>5</sup> to examine the relationship between fish, omega-3 fatty acid intake, and the risk of various types of stroke<sup>6</sup>, found that those who consumed fish five or more times per week, had a 52% reduced risk of total stroke, compared with women who consumed fish less than once per month.

Omega-3 fatty acid intake was also associated with reduced risk of total stroke and thrombotic infarction. These results were particularly striking among women who did not take aspirin.

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<sup>2</sup> Dallongeville J, Yamell J, Ducimetière P, et al. 2003. Fish consumption is associated with lower heart rates. *Circulation*. 108:820-825.

<sup>3</sup> Specifically, thrombotic infarction

<sup>4</sup> Iso H, Rexrode KM, Stampfer MJ, et al. 2001. Intake of fish and omega-3 fatty acids and risk of stroke in women. *JAMA*. 285(3):304-312.

<sup>5</sup> The Nurses study includes, among other things, the diets of 79,839 middle-aged women. Hiroyasu Ito, MD, Ph.D., and colleagues carried out this analysis.

<sup>6</sup> Subarachnoid hemorrhage, intraparenchymal hemorrhage, and ischemic strokes, such as thrombotic or embolic

Is there any downside of increasing fish intake?

Studies of Greenland Eskimos have indicated that very high intakes (50 to 100 times the average U.S. consumption) of omega-3 polyunsaturated fatty acids may increase risk of hemorrhagic stroke, possibly by increasing bleeding time.

Increased bleeding time:

In the analysis of the Nurses' Health Study, no excess risk of hemorrhagic stroke was noted among women who frequently consumed fish or omega-3 fatty acids. However, the researchers indicated that 3 gm or more per day of omega-3 fatty acids can, in fact, prolong bleeding time. While this dosage may be difficult to attain through food sources (it would require eating fish 3 times per day), it could be caused through the use of dietary supplements, which often contain 300 mg of omega-3 fatty acids per capsule.

Mercury content in fish:

In 2004, increased levels of mercury led to warnings from the FDA. Pregnant women, women who may become pregnant, nursing women, children, and the elderly are recommended to avoid fish with high levels of mercury and to limit overall fish intake.

Mercury is an accumulative poison, so is found in older and larger fish, particularly those at the top of the food chain, because as they consume smaller fish, they absorb all the mercury those small fish have accumulated.

The March 2004 FDA advisory states<sup>7</sup>:

1. Do not eat shark, swordfish, king mackerel, or tilefish because they contain high levels of mercury.
2. Eat up to 12 ounces (two average meals) a week of a variety of fish and shellfish that are lower in mercury.

Five of the most commonly eaten fish that are low in mercury are shrimp, canned light tuna, salmon, pollock, and catfish.

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<sup>7</sup> Accessed at <http://www.fda.gov/bbs/topics/news/2004/NEW01038.html> on March 24, 2004

Another commonly eaten fish, albacore ("white") tuna has more mercury than canned light tuna. So, when choosing your two meals of fish and shellfish, you may eat up to six ounces (one average meal) of albacore tuna per week.

Check local advisories about the safety of fish caught by family and friends in your local lakes, rivers, and coastal areas. If no advice is available, eat up to six ounces (one average meal) per week of fish you catch from local waters, but don't consume any other fish during that week.

For more information, visit <http://www.epa.gov/waterscience/fish/advisory.html>.

### **Dietary fat may increase risk of age-related macular degeneration**

Researchers from the Harvard School of Public Health suggest<sup>8</sup> that a high fat intake may increase the risk of age-related macular degeneration (AMD). Atherosclerosis of the blood vessels supplying the retina may contribute to the risk of AMD, similar to the mechanism underlying coronary heart disease (CHD). Some researchers suggest that dietary fat components related to CHD may also be related to AMD.

This study examined the relationship between specific types of fat and risk of AMD in two large prospective groups of men and women, participants in the Nurses' Health Study and the Health Professional's Follow-up Study. The later study included 42,743 women and 29,746 men older than 50 years of age, with no diagnosis of AMD. They were followed from baseline (1984 for women and 1986 for men) until 1996. Fat intake was assessed with a food frequency questionnaire and researchers looked at those people with AMD with a visual loss of 20/30 or worse.

Researchers documented 567 cases of AMD during the 12-year follow-up in women and the 10-year follow-up in men. Total fat intake was associated with a significant increase in risk of AMD in both men and women ( $p=0.008$ ). Linolenic acid was positively associated with the risk of AMD in both men and women; individuals with the highest intake were at a 49% greater risk of developing AMD, compared with

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<sup>8</sup> Cho E, Hung S, Willett WC, et al. Prospective study of dietary fat and the risk of age-related macular degeneration. *Am J Clin Nutr* 2001; 73:209-218.



individuals in the lowest quintile. More than one serving per week of beef, pork, or lamb (all sources of linolenic acid) was associated with a 35% increased risk of AMD, compared with fewer than three servings per month. A high intake of margarine was also significantly related to an increased risk of AMD. Docosahexaenoic acid had a modest inverse relation with AMD ( $p=0.05$ ) and more than four servings per week of cold-water fish was associated with a 35% lower risk of AMD, compared with three or fewer servings per month.

While the researchers acknowledge that their findings need to be confirmed by other studies, they suggest that “the association between total fat intake and AMD risk appears to be due to positive associations with specific fatty acids rather than with fat per se.” They conclude that their study “raises the possibility that a high intake of linolenic acid may contribute to the occurrence of AMD” and that “a higher intake of fish may reduce the risk of AMD.”

## Organic Foods

### Federal Organic Standards

The U.S. Federal Government established the country's first official definition of “organic” in 2002. The “USDA Organic” seal appears on labeling, replacing the previous mix of unofficial and individual state definitions of organic. The seal gives consumers a consistent way to buy fruits, vegetables, meat, and dairy products produced without using pesticides, genetic engineering, growth hormones, or irradiation.

The Department of Agriculture released the standards after a decade-long debate between supporters of organic farming and the conventional food industry.

The final version endorses many of the positions promoted by the organic food industry and acknowledges the growing popularity of organic foods, which are promoted as less damaging to the environment and perhaps higher quality.

Organic producers and consumers protested against an earlier version that allowed conventional farming practices, such as spreading sewage sludge as a fertilizer and using pesticides and biotechnology to control weeds and pests.

“I am proud to say these are the strictest, most comprehensive organic standards in the world,” said Agriculture Secretary Dan Glickman. Glickman supported organic foods, saying that he sometimes buys organic frozen foods himself, but made clear that the new organic seal does not imply that foods are either safer or more nutritious.

“The organic label is a marketing tool,” he said. “USDA is not in the business of choosing sides, of stating preferences for one kind of food, one set of ingredients or one means of production over any other.”

The conventional food industry fought many provisions of the organic rule from the beginning. Just recently, the National Food Processors Association asked the USDA to require that the organic label include a statement on all organic products saying they were no more safe or nutritious than conventional foods. In the end, the USDA did not require the disclaimer, but did modify the label by dropping the traditional USDA shield and eliminating the word “Certified”.

To qualify for the organic seal, a farmer must follow detailed rules for how crops are planted and grown, how animals are raised, and how wastes are treated. The approach emphasizes sustainable farming, conserving soil, and encourages biodiversity. Animals are to be raised outdoors as much as possible and with access to pastures to ensure their welfare.

The National Organic Program will not require inspectors, but will instead rely on certifying agencies that will be accredited by the USDA.

The new standards are expected to enhance organic exports, particularly from smaller producers of organic produce.

## Organic Labeling and Marketing Information

### 100% Organic

Must contain only organic ingredients. Can bear a label reading “100% organic” and the USDA organic seal on the primary display label.

### Organic

Must contain at least 95% organic ingredients excluding water or salt. Label can read “organic” and carry USDA organic seal. The up to 5% non-organic components must be from materials not available as organic or non-agricultural products on the National List.

### Made with Organic Ingredients

Must contain at least 70% organic ingredients. Up to three ingredients can be listed on the front of the package. Label can read “Made with Organic Ingredients” but can not carry USDA organic seal.

### Certification Agencies

All categories must be certified by a USDA accredited certification agency, and the name of this agency must be on the information panel. Knowingly making organic claims for products not produced and handled in accordance with the regulations can attract a civil penalty of up to \$10,000.

### Organic Seal

The Organic Seal is a circular seal, not shield-shaped, which conventional food processors feared would lead consumers to believe organic food is safer due to similarity with the safety shield used on meat, eggs, and other inspected foods.

For information on the National Organic Program, visit:

<http://www.ams.usda.gov/nop/>.

## JUICE THERAPY

When made into juices, the vitamins, minerals, enzymes, and antioxidants found in fruits and vegetables are concentrated. Juices quickly support and regenerate tissue because of this concentration.

To avoid unnecessary loss of minerals, vitamins, and enzymes, it is vital to extract juices and to use them quickly.

Always use fresh, organic fruits and vegetables. Juices can be made from single fruits and vegetables or combinations. Never mix fruit and vegetable juice together. Mixing them together impairs digestion and assimilation, resulting in gas and only a partial assimilation of nutrients.

Try to savor each mouthful of the juice. This not only enhances your enjoyment of the juice, but also allows your saliva to begin the digestive process that usually occurs during chewing. Do not heat the juice at all, as this will also destroy nutrients. Remember that juicing removes much of the fiber from fruits and vegetables and should not, therefore, replace your usual fruit and vegetable quota.

Juices can be used therapeutically to support and balance a stressed body system and as a valuable addition to the everyday diet.

It is not within the scope of this wellness guide to discuss all juices and their specific uses. However, the following list will indicate their potential. Try using organic fruits and vegetables in season, as this is when their vitamin and mineral content are highest.

Of course, one vital piece of equipment is a juice extractor. They are well worth the initial investment. Your health is worth the investment.

## Fruits

FRUIT	USES
APPLE	General cleanser, immune booster, and stimulates digestion
APRICOT	Blood builder, gentle laxative, and skin tonic
GRAPE	Energy tonic, blood tonic, and respiratory tonic
LEMON (ALWAYS DILUTE)	Gout, arthritis, laxative, and sore throats
PEAR	Mild laxative and skin tonic

## Vegetables

VEGETABLE	USES
BEETS	Kidney problems, mild laxative, and nerve tonic
CABBAGE	Obesity, antiseptic, duodenal ulcers, and mild laxative
CARROT	Respiratory tract infections and eye tonic
CUCUMBER	Diarrhea, equalizes blood pressure, split nails, and hair loss
CELERY	Arthritic disorders, blood builder, and diuretic

There are many excellent books on Juice therapy. The following are particularly recommended:

- *Healing with Herbal Juices: A Practical Guide to Herbal Juice Therapy: Nature's Preventative Medicine* by Siegfried Gursche
- *Raw Juice Therapy* by John B. Lust\*
- *The Uses of Juices* by C.E. Clinkard\*
- *The Complete Raw Juice Therapy* by Susan E. Charmine\*

\* Out of print, but available second-hand

## FASTING

Fasting consists of abstaining from solid foods for a time. This assists the body to cleanse. By eliminating food, the enormous energy required to digest food is released and put to the task of spring-cleaning the body. The liver and entire digestive system is given a well-earned rest. After all, we spring clean our house, but how often do we spring clean our body?

Fasting begins as soon as you stop eating. There are many types of fasts, and the duration will depend on your work commitments and physical and mental state. Each person is different and will respond differently to fasting, so listen to your own body. However, there are some basic rules:

- Consult your doctor before undertaking a fast if you are on medication or have any medical condition.
- No smoking or drinking alcohol, coffee, or tea. You may want to cut down consumption of these items gradually in the weeks before the fast.
- Discontinue vitamin supplements.
- Two days before a fast, eat light foods: mainly vegetables and fruits.
- You may want to try a fresh foods diet as an alternative to fasting to begin with.
- Allow yourself to rest when you feel like it during the fast: You may experience discomfort, headaches, dizziness and nausea as toxins are eliminated.
- Avoid stress and concentrate on positive thoughts.
- Fast on vegetable and fruit juice (freshly extracted), pure water, or herb teas. It is important to drink at least eight large glasses of water a day.
- It is important to have a bowel movement once a day while fasting. Use senna leaf tea, linseed tea, yellow dock root and burdock root decoctions or capsules, or enemas if necessary.
- Exercise regularly—walking is ideal.
- Resume eating gradually after fasting. Start with a piece of fruit or lightly steamed vegetables. Take two to three days, depending on the duration of the fast, to resume normal food intake. Never over eat.

The benefits of fasting are enormous: It allows the body to throw off toxins and regenerate tissue, and it can result in heightened self-awareness. If you decide to fast for longer than three days, seek guidance from your Naturopath or experienced practitioner.

## **Elimination Regime**

The following elimination regime is particularly effective for alkalizing and cleansing the body.

This is a total fruit and vegetable regime (all alkalizing foods). Abstain from any supplements during this period. After 11 days, you can return to your regular, healthy way of eating.

This cleansing and eliminative regime may be used two to three times every year and especially when feeling out of sorts, or when acute illnesses occur. Again, do not use this program as a means of achieving short-term weight loss, if you are diabetic or hypoglycemic, or if you are on medication. Be sure to consult your primary care physician before fasting.

## **Requirements**

- Potato peel broth (see recipe below)
- Organic cider vinegar and honey (or herbal teas and fruit juices)
- Unpolluted water. Use rainwater or boiled tap water. Allow it to cool and soak a handful of wheatgrass blades (or any green plant leaves) in the water overnight. The chlorophyll helps to absorb chemicals.
- Enema kit
- Will power and determination



## Procedure

For the first three days:

First thing in the morning:

Drink 1-pint of lukewarm potato peel broth.

Mid Morning:

Drink 2-cups of cider vinegar beverage (see recipe below), freshly extracted fruit juice, or herb tea. Try peppermint, dandelion, or oatstraw.

Lunch:

Drink 1-pint of potato peel broth.

Mid Afternoon:

Drink 1-pint of unpolluted water.

Dinner:

Drink 1-pint of diluted cider vinegar and honey or herbal tea.

## Elimination

This regime includes a total of 2,400 ml (4-pints) of fluid a day. More may be taken if desired. If you find you are not having a bowel movement every day, you must take an enema at least once a day or use an herbal laxative, such as yellow dock and burdock. If you choose an enema, use pure water, along with any of the following: 1-t baking soda and 1-T epsom salts, linseed, and the strained juice of half a lemon or some wheatgrass juice. Use up to 1,200 ml (2-pints) of warm fluid for each enema. Try to retain for as long as possible and gently massage the abdomen clockwise.

For the next eight days:

First thing each morning:

Drink 1-pint of potato peel broth.

Mid Morning:

Fresh fruit or herb tea.

Lunch:

Small, raw salad with sprouts, grated beets, 1-cup of potato peel broth.

Afternoon Tea:

Drink 1-pint of unpolluted water.

Dinner:

Raw salad and steamed vegetables (especially greens), with 1-cup of potato peel broth. Occasionally, a potato baked in the oven with the skin or a baked apple with honey. Do not use any butter, sour cream, or salad dressing.

## Recipes

### **Cider Vinegar Beverage**

1-cup cider vinegar

5-cups pure water

Mix cider vinegar and water. Add honey to taste.

### **Potato Peel Broth**

2-cups organic potato peel ½-inch thick

3-cups organic celery stalks

Organic carrot and organic onion to flavor

2-cups organic celery tops

2-cups organic beet tops

½-cup organic parsley

1-t kelp

Chop ingredients finely and bring to boil in 1,200 ml (2-pints) distilled or rain water. Simmer 30 minutes. Strain and use broth only.



## ACID ALKALINE BALANCE

Many nutritionists believe that if an 80-20 alkaline acid proportion is followed in the daily diet, you need not study food chemistry or worry any further about what you eat. The following will explain this theory in greater depth. Recommended reading for this section is *The Acid Alkaline Diet for Optimum Health* by Christopher Vasey, N.D. This excellent text is available [at: www.apothecary-shoppe.com](http://www.apothecary-shoppe.com).

## Basic Definitions

pH = measure of how acid or how alkaline a substance is.

pH scale = scale of measurement for acidity and alkalinity.

acid	neutral	alkaline
1	7	14

## Body pH

All chemical processes have an ideal pH at which they are most efficient. The human body functions best slightly alkaline (pH of 7.0 to 8.0).

Our blood is slightly alkaline and the body makes every effort to maintain this alkalinity at a constant level. For this purpose, we normally have an ample body reserve of alkalizing minerals.

Most of our foods supply minerals. The total balance of minerals in a particular food may be either acid or alkaline. Mineral salts are composed of an acid group (anion), such as chloride or phosphate, and of an alkaline group (cation), mainly metal ions, such as sodium, calcium, or potassium. If one of these groups is stronger, then the salt is either acid or alkaline on balance.

Whether a food is classed as acid or alkaline, has nothing to do with how it tastes. It is the residue that remains once it is metabolized that is important.

When the body metabolizes food to produce energy, a residue remains, which is alkaline, acid, or neutral depending on the original chemical constituents of the food. It is the residue that remains once a food is metabolized that determines whether it is classified as acid or alkaline. It has nothing to do with how the food tastes. Foods may taste acid, yet leave an alkaline residue in the body.

In plants, strongly alkaline metal ions are usually combined with weak organic acids. There may be a surplus of organic acids not bound to cations and this will make the food taste acid, as in fruits. However, in the body these free organic acids, as well as those bound to metal ions, are oxidized. In the end, this leaves an alkaline residue. Therefore, we say vegetables and fruits are alkalizing or alkaline-forming.

Animal tissue, on the other hand, contains a high percentage of strongly acid phosphoric acid, bound to weak-reacting proteins and other biochemicals. The organic compounds in foods of animal origin will be oxidized and a strongly acid residue remains.

Accordingly, we may classify our food as either alkaline-forming or as acid-forming.

Alkaline-forming foods include vegetables, fruits, soybeans, almonds, most legumes, potatoes with skin, bananas, millet, and buckwheat.

Acid-forming foods include meat, fish, eggs, cheese, most grains, and nuts.

Neutral foods include fats and oils, as they contain neither acid nor alkaline chemical compounds.

Refer to the Acid-Alkaline Food Chart for a complete list of these foods.

To maintain an ample alkaline body reserve, we should eat approximately four times the weight of alkaline-forming food compared to acid-forming food, or 80% alkalizing to 20% acidifying food.

Cellular functions, including nerve processes and muscular contraction, are carried out more effectively in an alkaline body state. If you suffer with constant fatigue, anxiety, depression, aches and pains, cramps, weight problems, digestive troubles, and lowered resistance to infections, you will benefit from an 80% alkaline diet.

## Effects of Over-Acidity

Many diseases and allergic reactions are associated with an over-acid condition of the body fluids. If the carbohydrate metabolism and the blood-sugar regulation are weak, as in diabetes, hypoglycemia, and in the widespread conditions leading to these diseases, an over-acid condition is even more detrimental.

These conditions and their associated symptoms, such as pain and weakness, indicate that the alkaline reserves of the body are exhausted. In such cases, we need even more alkalizing food than normal.

Further, people with a weak carbohydrate metabolism cannot properly oxidize glucose to carbon dioxide and water. These end products are normally expelled with the urine and the air and leave the body in a neutral balance. However, in a weakened condition, any excess of glucose, as after eating sweet foods, is only partly oxidized to organic acids.

This leads to an accumulation of organic acid and an over-acidity of the body tissues that is felt as pain, most prominent in arthritis and rheumatism. If the alkaline reserve is insufficient to neutralize these acids, more and more calcium will be mobilized from the bones for this purpose, causing the bones to become brittle and the tissues and joints to calcify.

## Alkaline Foods Become Acid-Forming

Over-acidity is a cycle. In an over-acid and mineral-deficient system, because of this incomplete oxidation, sugars that are chemically neutral and even dried fruits that are chemically alkaline become highly acid-forming. For example, lactose (milk sugar) forms a mucoid acid (galacto-saccharic acid), which causes mucus congestion and pain. Also, refined carbohydrates can often form mucus and acid because of partial oxidation.

Incorrect food combinations can cause normally alkaline-forming foods to become acid-forming, as can eating when you are upset or unwell.



Taking large amounts of vitamin C, especially as synthetic ascorbic acid, increases the body acidity and can lead to increased pain. Therefore, high doses of vitamin C should be balanced by increased amounts of strong alkalizers. Calcium ascorbate is a good source of vitamin C, as calcium is the most effective alkalizing mineral.

### **Strong Alkalizers**

Fresh, green vegetable juices and vegetable broth are the best natural alkalizers, including the broth of boiled organic potato skins. Use these alkalizers freely for an over-acid condition.

Use fruit and fruit juices with care and self-observation, as they may bring undesirable amounts of organic acids into the body. For people with a normal carbohydrate metabolism, however, acid fruits and their juices are excellent alkalizers.

Cider vinegar must be avoided in over-acid conditions, although it leaves an alkaline residue.

### **The Vicious Spiral of Over-Acidity**

Many ill people are caught in the vicious circle, or downward spiral, of over-acidity:

- Because the food lacks sufficient alkalizing minerals, the metabolism becomes inefficient and organic acids accumulate in the body;
- These acids require additional alkaline reserves for neutralization and cause the metabolism to become even more inadequate; and
- This in turn produces more acids.

### **Testing Body Acidity**

You will need pH or litmus paper. Regular blue and red litmus will give an approximate reading of acidity or alkalinity. Blue litmus will turn red if the urine or saliva is acidic and the red litmus will turn blue if alkaline. Some litmus paper is graded to obtain a more accurate pH reading. This can be obtained from pharmacists or drug stores.

During the initial stages of health improvement, check the acidity of the first morning urine and of the saliva.

The normal pH of saliva is neutral or slightly alkaline in the range of 7.0 to 7.5. The normal pH of urine is neutral or acid in ranges from 4.5 to 7.0. The acidity level of saliva changes slowly, while the urine may change more rapidly.

If the morning tests are too alkaline, the body can be acidified with increased amounts of vitamin C. Usually, however, the body will be too acid and vegetable juices and broth should be used extensively.

### The Alkaline Diet

It is advisable to follow a high-alkaline diet, not only to provide foods that contain a greater percentage of vital nutrients, but also to provide foods that leave the body in a state of mild alkalinity following their metabolization.

### Acid-Alkaline Food Chart

#### Alkaline Fruits

(All CAPS indicate slightly acid)

Apples and Cider	Apricots	Avocados
Bananas (ripe)	Berries (all)	Carob (pod only)
CRANBERRIES	Cherries	Currants
Dates	Figs	Grapes
Grapefruit	Guavas	Lemons (ripe)
Limes	Loquats	Mangoes
Melons (all)	Nectarines	Olives (sun dried)
Oranges	Papayas	Passion fruit
Peaches	Pears	Persimmons
Pineapple (fresh if ripe)	PLUMS	Pomegranates

PRUNES AND JUICE	Quince	Raisins
Tamarind	Tangerines	Tomatoes

### Acid Fruits

All preserved or jellied	Canned (sugared)	Dried (sulfured)
Glazed Fruits	Raw, with sugar	Bananas (if green)
Olives (pickled, green)		

### Alkaline Vegetables

(All CAPS indicate slightly acid)

Vegetable (broth)	Artichokes	Asparagus (ripe)
Bamboo shoots	Beans, green lima, string, sprouts	Beets and tops
Broccoli	Cabbage (red and white)	Carrots
Celery	Cauliflower	Chicory
Chives	Cucumber	Dandelion greens
Dill	Dock (green)	Dulse (sea lettuce)
Eggplant	Endive	Garlic
Horseradish (fresh)	Jerusalem Artichoke	Kale
Kohlrabi	Leek	Legumes, except peanuts and lentils
Lettuce and romaine	MUSHROOMS (most varieties)	Okra
Onions	Oyster plant	Parsley
Parsnips	Peppers (green or red)	Potatoes (all varieties)
Pumpkin	Radish	Rhubarb
Rutabaga (Swede)	Salsify	Sauerkraut (lemon only)
Sorrel	SOY BEANS	Soy bean extract
Spinach	Squash	Taro (baked)

Turnips and tops	Water chestnut	Watercress
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### Acid Vegetables

Asparagus tips (white)	Beans (all dried)	Brussel sprouts
Garbanzo beans	Lentils	

### Alkaline Dairy Produce

Acidophilus	Buttermilk	Milk (raw—human, cow or goat)
Whey	Yogurt	

### Acid Dairy Produce

Butter	Cheese (all)	Cottage cheese
Cream (ice cream, ices)	Custards	Milk (boiled, cooked or pasteurized, malted, dried, canned)

### Alkaline Flesh Foods

None (blood and bone only are alkaline-forming)

### Acid Flesh Foods

All meat (poultry and fish)

**Acid Cereals and Grains**

All flour products	Barley	Breads (all kinds)
Cakes	Corn, cornmeal, corn flakes	Crackers (all)
Doughnuts	Dumplings	Macaroni and spaghetti
Millet	Noodles	Oatmeal
Pies and pastry	Rice	Rye

Note: Millet and Rye are the least acid-forming grains.

**Alkaline Miscellaneous**

Agar	Alfalfa products	Coffee substitutes
Ginger (dried, unsweetened)	Yeast	Kelp (edible)
Teas (unsweetened, including herb teas)		

**Acid Miscellaneous**

All alcoholic beverages	Cocoa and chocolate	Coca-Cola and all sodas including seltzer water
Coffee	Condiments (curry, pepper, salt, spices)	Dressings and thick sauces
Ginger (preserved)	Honey	Jams and Jellies
Flavorings	Marmalades	Preservatives (such as benzoate & sulfur)
Sago	Salt (brine)	Sleep (lack of )
Smoked foods	Sweets	Tapioca
Tobacco	Vinegar	
Overwork	Worry	

**Alkaline Nuts**

Almonds	Chestnuts (roasted is OK)	Coconut (fresh)
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**Acid Nuts**

All other nuts (more so if roasted)	Coconut (dried)	
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**Neutral**

Oils (olive, corn)	Cotton seed, peanut	Soy, sesame
Fats, lard	Sugars	

## FOOD COMBINATION GUIDELINES

“Let thy kitchen be thy apothecary and let foods be your medicine.” —Hippocrates

### Introduction

Food combining is an umbrella term that includes three topics:

- Understanding how to combine different nutritious foods to provide a balanced, visually appealing, and nutritious menu;
- Understanding what food groups to combine to enhance digestion and assimilation; and
- Combining protein foods to provide all the essential amino acids.

Once you begin the gradual transition from processed foods to whole, unprocessed, fresh foods focusing on fresh vegetables and whole grains, preparing a variety of meals can be daunting.

There are many excellent cookbooks on the market that specialize in vegetarian or whole food cookery. It is well worth investing in those that appeal to you. Experimenting with new recipes and combinations of food can be exciting and delicious. Your local library is an excellent source of a huge variety of cookbooks and using your library allows you to try before you buy!

Family members can often resist dietary changes, particularly children. Remember that nutritional improvement should be evolutionary, rather than revolutionary. Research shows that many children need to be exposed to new tastes 10 times before they will accept them, so just keep trying. Old menus can be changed gradually and adapted by mixing new tastes and foods with old favorites.

Introduce new flavors slowly:

- Add lentils or beans to meat dishes to enhance their food value, gradually replacing all of the meat if you want; and



- Add sprouts to soups and stew (just before serving to avoid destroying any of their nutritional content) to disguise their flavor and appearance for those who are not sure they like them.

A gradual change allows the digestive system time to adapt to beans and legumes (which can occasionally cause digestive disturbances if the system is not used to them, such as flatulence), and also allows children time to become used to the taste and texture of the new foods.

Casseroles, soups, and stews are all efficient ways of combining foods. They can contain vegetables, grains, legumes, and a little meat, and served with a fresh salad, you have a simple nutritious meal. The slow cooker or crock-pot is an excellent tool for those beginning to incorporate more whole foods. You can leave whole grains slowly cooking overnight for a delicious whole grain breakfast.

Combinations can vary tremendously and are only limited by what you have in your kitchen and your imagination. Stock your pantry with grains, legumes, seeds, and nuts. These can be stored in recycled, glass containers and are on hand to grind fresh for flour or porridge, sprout, or to cook with soup or stews.

Remember that cooking methods affect the final nutrient value of the food you eat, so never boil your vegetables. Always steam, broil, or bake, and include raw fruits and vegetables in the diet every day.

When preparing food, try to make it as visually appealing as possible. This is an important start to the digestive process and can be as simple as adding color. Use tomatoes and beets (grated raw or the juice) for color. You can also add edible flowers, such as nasturtium, borage, violets, and honeysuckle, which make attractive additions to salads or as garnishes on nut loaves or stews.

### **Combining Guidelines for Digestion and Assimilation**

The following are basic food combining guidelines. Refer to the chart and list of Classification of Foods for an in-depth understanding. Try not to get too rigid about food combining unless you note physical problems following eating. Ultimately, your body is the best guide of which method is right for you.

Whether you are just embarking on your wellness program, recovering from an illness, or if you suffer from indigestion and related problems, these food-combining guidelines can help.

These rules are based on the fact that foods fall into a variety of categories, each requiring different enzymes and quantities of gastric juice to be digested. The theory of food combining states that if foods from all categories are eaten at the same time, some food may remain undigested for longer than it should. The digestive system is required to work twice as hard to digest and assimilate the food. This can place an unnecessary burden on the whole system and result in problems, such as indigestion, constipation, heartburn, flatulence, bloated stomach, and nausea. If you experience any of these symptoms after eating, try following the food combining guidelines.

Note that the theory of combining for digestion and assimilation can vary from the theories for protein combining. For example, much protein combining involves mixing primary and secondary proteins with carbohydrates, which are listed as poor combinations for digestion and assimilation! The issue can be very confusing and it does not help that opposing theories abound. Remember that each person is a unique individual and what works for one person may not work for the next. If you find conflicting advice between theories, try each one and determine for yourself which one meets your body's needs.

## Food Combining Chart

Food Groups	Primary Proteins	Secondary Proteins	Fats	Carbs	Melons	Veggies	Sweet Fruits	Sub-Acid Fruits	Acid Fruits
Primary Proteins	Good	Poor	Poor	Poor	Poor	Good	Poor	Fair	Good
Secondary Proteins	Poor	Fair	Poor	Poor	Poor	Good	Poor	Poor	Fair
Fats	Poor	Poor	Good	Fair	Poor	Good	Fair	Fair	Fair
Carbs	Poor	Poor	Fair	Good	Poor	Good	Fair	Fair	Fair
Melons	Poor	Poor	Poor	Poor	Good	Poor	Fair	Fair	Poor
Veggies	Good	Good	Good	Good	Poor	Good	Poor	Poor	Poor
Sweet Fruits	Poor	Poor	Fair	Fair	Fair	Poor	Good	Good	Poor
Sub-Acid Fruits	Fair	Poor	Fair	Fair	Fair	Poor	Good	Good	Good
Acid Fruits	Good	Fair	Fair	Poor	Poor	Poor	Poor	Good	Good

## Basic Combining Guidelines

- Do not mix too many types of foods at the same meal. Digesting each food requires a different set of enzymes. When too many foods are eaten at the same meal, the process of digestion has to slow down to cope with the overload. This can cause problems. For example, if protein sits in the digestive tract, harmful substances may be produced and potentially absorbed into the blood stream. This can cause sluggishness, headaches, and general aches and pains.
- Avoid mixing proteins and fats at one meal. Fats tend to inhibit the secretion of gastric juices and slow down protein digestion.
- Avoid mixing carbohydrates and acid fruits. The acid fruit destroys the alkalinity of the saliva and slows down the digestion of carbohydrates.
- Do not mix raw fruits and raw vegetables at the same meal. Raw fruits and vegetables require totally different enzyme combinations and digestion is inhibited, resulting in poor digestion and excess flatulence.
- Do not mix different protein foods (for example, primary and secondary). Primary proteins require strong hydrochloric acid to be digested and should

be eaten at the beginning of a meal. Include only one complete protein food in a meal. An excessive amount of protein, particularly meat, produces toxic quantities of uric acid and other waste products that overburden the liver and kidneys in the process of elimination.

- Too much protein also leads to brittle bones, as minerals, such as calcium, are required to buffer the uric acid. If the diet does not supply enough of these minerals the body will take them from the bones.

## **Classification of Foods**

Note that these foods are given as examples only and are not exhaustive.

### **Fats**

Avocados, coconut, macadamia nuts, olives

### **Vegetables**

Asparagus, beans (fresh), broccoli, cabbage, capsicum, carrot, cauliflower, celery, cress, cucumber, eggplant, kale, lettuce, mushroom, onions, parsley, radish, spinach, sprouts (fresh), tomato (acid), turnip, watercress, zucchini

### **Carbohydrates**

Beans (all types), broad beans, buckwheat, corn, chickpeas, Jerusalem artichoke, lima beans, millet, navy beans, peas, pinto beans, potato, pumpkin, red kidney beans, rice, rye, sweet potato, wheat, yams

### **Proteins**

#### **Primary**

Almonds, Brazil nuts, cashew nuts, hazelnuts, sunflower seeds, sesame seeds, lecithin, soy beans, tofu

## Secondary

Milk, peanuts, cheese, eggs, chicken, fish, meat

## Acid Fruits

Grapefruit, kiwifruit, lemon, lime, mandarin, oranges, pineapple, passion fruit, strawberry

## Sub-acid Fruit

Apples, apricot, blackberries, cherries, grapes, guavas, mangoes, mulberry, papaya, peaches, plums, pears, raspberry

## Sweet Fruits

Bananas, figs, persimmon, all dried fruits

## Melons

Rock melon, watermelon, honeydew

## COMBINING PROTEINS

Combining incomplete protein foods to form a complete protein is of vital importance, particularly for vegetarians or people who are reducing their meat intake, who must obtain complete proteins from vegetable sources.

A complete protein is made up of approximately 22 amino acids. The body can manufacture some of these. However, nine of the amino acids cannot be manufactured and are, therefore, known as the essential amino acids. Foods that contain all the amino acids are known as complete proteins: for example, meat, fish, poultry, and dairy products. Foods that are lacking in one or more of the essential amino acids are known as incomplete proteins (such as grains, legumes, seeds, nuts, and vegetables).

The nine essential amino acids are:

- Tryptophan
- Leucine
- Lysine
- Methionine
- Phenylalanine
- Threonine
- Valine
- Isoleucine
- Histidine

Traditionally, nutritionists believed that these nine essential amino acids must all be supplied in foods at the same meal and in the correct proportion to create a complete protein. In other words, you can create a complete protein by combining incomplete protein foods. Recently, this theory has been challenged. It is now thought that it is not necessary to eat all nine amino acids at the same meal to make a complete protein. As long as we eat some amino acids the blood will store them and create protein when needed. Still, be aware of this theory, and if you can prepare a vegetarian meal with a complete protein—why not do so? It is important to listen and observe your body. Note the deficiency symptoms below. If you can say yes to any of these protein deficiency signs, you may want to examine your complete protein intake and question if it is adequate.

## Protein Deficiency Signs

Protein deficiency may not be apparent for quite some time, as the body tends to use protein from its own tissues if the diet is inadequate. This results in:

- Flabby muscles.
- Thinning hair.
- Split nails.
- Low blood pressure.
- Constipation.

## Complete Protein Combinations

- Grains and milk products are a complete protein combination. Grains include wheat, rye, oats, barley, rice, millet, and corn.
- Grains and legumes are another strong combination. Legumes include beans, peas, lentils, and peanuts.
- Nuts and seeds with legumes are another complete combination.

You can see that meals created around these combinations can be varied and interesting.

## Practical Exercise

Choose one day and write down all the food you eat. Note beneficial or poor food combinations.

## ELIMINATION THERAPY

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The body has five systems of elimination:

- The bowel;
- The lungs;
- The skin;
- The kidneys; and
- The lymphatic system.

It is vital to keep all the eliminative channels in top working order. When waste products start to settle in the body, organ systems do not function well. Some of the symptoms you may notice include headaches, muscle aches, or fatigue.

Below is a brief introduction to each of these systems and their eliminative function. By necessity, this is a brief discussion only. A good text, such as the *Structure and Function of the Body* by Thibodeau and Patton (available through the Apothecary Shoppe College Store<sup>9</sup>) can provide more detailed information. The College also offers a Diploma in Holistic Health Practice. Call for more details, or visit us online at: [www.achs.edu](http://www.achs.edu).

### THE BOWEL

The small intestine ends and the large intestine begins in the lower right-hand side of the abdomen, where the appendix is situated. The ileocecal valve separates the small and large intestines.

The functions of the two areas are quite separate. The upper parts of the digestive system (the mouth, stomach, and small intestine) are designed for absorption, while the lower colon is designed for elimination. In the lower colon, food wastes and other waste matter from the body are eliminated.



The importance of keeping the bowel clean and free from stagnating wastes cannot be stressed enough. Toxins find their way into the blood stream and lymphatic system from a clogged bowel. Remember the blood that circulates through the bowel is also the blood that circulates through the brain—a clean, unobstructed bowel leads to a clear mind and balanced body.

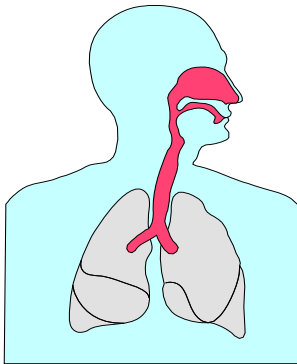
For more information of bowel cleanliness, refer to Dr. Bernard Jensen's book, *Tissue Cleansing Through Bowel Management*, available through the Apothecary Shoppe College Store.

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<sup>9</sup> [www.apothecary-shoppe.com](http://www.apothecary-shoppe.com) or (800) 487-8839

Tips for a healthy bowel:

- Ensure you consume sufficient fiber. The average American consumes only 13 grams of fiber per day. The minimum amount recommended for a healthy bowel is 25 grams per day, while 35 grams per day is needed to reduce the risks of bowel cancer. If your fiber intake is low, gradually increase your fiber intake to avoid gas and stomach upset.
- Reduce stimulants in the diet, including caffeine and nicotine, which can stress the bowel.
- Gradually reduce the use of synthetic laxatives. For constipation, try prunes and prune juice. If this is not effective, try a capsule filled with a blend of powdered burdock root and yellow dock root in the evening. For freshness and the highest activity, buy whole roots, grind them in a clean coffee grinder, and fill your own capsules. Capsule fillers and organic roots are available at the Apothecary Shoppe College Store.



## THE LUNGS

The lungs perform two essential tasks: eliminating carbon dioxide and providing fresh oxygen for the cells. They also excrete excess heat and water.

Tips for healthy lungs:

- Avoid smoking, including passive smoking, or inhaling chemicals like paint fumes and glues, as these will inhibit lung function.

- Deep breathing for 10 minutes everyday helps to remove stale air trapped in the lungs.
- Good posture is very important for the health of the lungs. Pilates and yoga focus on posture, and even one or two classes will assist you to breathe more deeply and improve your posture.
- Regular exercise is important. Try a daily walk, outside if possible.

## THE SKIN

The skin is sometimes referred to as the third kidney. The skin receives one third of the circulating blood and should eliminate one third of the body's waste through sweat and perspiration.

Tips for healthy skin:

- It is important to allow the skin to perspire and sweat freely. Avoid anti-perspirants (deodorant is fine), excessive soap (particularly harsh anti-bacterial soaps), and cosmetics, which all clog the pores. Body odor is an important indication of internal health. The perspiration of a healthy body should not have an offensive smell.
- Dry skin brushing (see next page)
- Saunas and steam rooms
- Hydrotherapy—showers using alternating hot and cold water

## Dry Skin Brushing

If you have not tried dry skin brushing, now is the time to start. Dry skin brushing is such a simple way to keep the skin soft, smooth, and healthy. It removes the layers of dead cells and stimulates the pores to eliminate toxic products. It tones the muscles, redistributes fatty deposits, breaks up areas of cellulite, and increases and stimulates circulation, especially of the small capillaries under the skin. Brushing while the skin is dry is important, as water acts as a lubricant and the beneficial effects of the friction are lost.

Use a natural-bristled brush, preferably a long-handled bath brush.<sup>10</sup> Note that it must be of natural bristles—nylon tears the skin and disturbs the electro-magnetic balance of the skin.

Take your brush and start in small circles, brushing all over the body. Do not brush the face or any tender or inflamed areas, but do brush the soles of the feet. The brush may feel very rough to begin with, so just use gentle pressure until you become used to the sensation. Dry skin brush at least once a day, followed by a hot and then cold shower. If this is too traumatic for you, just finish off with a shower at usual temperature. The hot and cold temperature is to further stimulate circulation, but is not vital.

If you can dry skin brush consistently over a period of a few months, you will notice the benefits, so much so, that you will miss it when you forget to brush for a few days.

## THE KIDNEYS

Kidneys filter from the blood the end products of metabolism, which are produced by the liver and other cells in the body. It is important to keep the kidneys healthy and urine flowing freely.

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<sup>10</sup> These are available at the Apothecary Shoppe College Store at: [www.apothecary-shoppe.com](http://www.apothecary-shoppe.com) or (800) 487-8839.

Tips for healthy kidneys:

- Whey powder: promotes the healthy flow of urine. Use 1-T sprinkled onto yogurt daily for two weeks, every three months.
- Parsley: Use fresh. Aim to eat a handful of chopped parsley twice per week: for example, in salads, on toast under a poached egg, or in an omelet.
- Dandelion coffee: Buy ready-made or make your own (see recipe below).
- Dandelion greens: can be added to salads and you can grate the raw roots into salads or a stir-fry.
- Cleavers: make as a tea using 1-t of dried herb per 1-cup of hot water. Drink 1-cup per day for two weeks, every three months as a tonic.
- It is critical for kidney function that we consume at least 6-8 glasses of water each day to enable the kidneys to flush toxins from the body. Recent studies have illustrated that sufficient water consumption is the single most important thing you can do to ensure the liver converts carbohydrates and fat to energy for the body.<sup>11</sup>

### **Dandelion Coffee**

To make your own dandelion coffee:

Either buy 2-lbs organic dried root and cut into 1-in sections, or:

- Dig your own (after carefully identifying the dandelion).
- Carefully wash the root if you have gathered your own.
- Slice the roots length-wise into 1-in sections.
- Air-dry the roots uncut for several days.

Then:

- Roast the dry root on a baking sheet at 250°F for 2 to 4 hours.
- Turn the roots regularly so that they brown evenly.

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<sup>11</sup> Keller U, Szinnai G, Bilz S, Berneis K. Eur J Clin Nutr. 2003. Effects of changes in hydration on protein, glucose and lipid metabolism in man: impact on health. Dec; 57 Suppl 2:S69-74.

- Grind the roasted roots as needed and use to replace coffee beans.
- Prepare as you would coffee, using 1-T of ground roots per 1-cup.

For dandelion tips and recipes, the *Dandelion Celebration, A Guide to Unexpected Cuisines* is a wonderful resource. It is available from the Defenders of Dandelions (1-800-697-4858), whose slogan is "If you can't beat 'em, eat 'em": [www.edibleweeds.com](http://www.edibleweeds.com).

## LYMPHATIC SYSTEM

The lymph system cleanses and protects the body from invading bacterial substances by preventing them from entering the general circulation. The lymphatic system does not have its own circulatory pump, unlike the heart, for example. It relies on the movement of the muscles to move the lymph fluid around the body.

If the lymph system becomes congested with acids, toxins, and drugs, it cannot perform its task at full potential.

Symptoms of clogged lymphatics are throat and tonsil problems, swollen glands, and sometimes cysts.

Tips for a healthy lymphatic system:

- Dry skin brushing allows lymph congestion to eliminate through your skin.
- Saunas. Ensure that you take plenty of liquids while in the sauna and when you get out. Do not stay in the sauna for more than 10-15 minutes and get out if you feel dizzy.
- Full-body exercise that propels the lymph fluid around the body, such as walking, swimming, and running.
- Massage, particularly of the throat, underarm, chest, and groin.
- Massage of the underarm and chest above the breasts in women helps to avoid congestion in the breasts.
- Massaging the reflex point for lymphatic drainage. This is found on top of each foot between the base of the big and second toes.

- Potassium is the mineral for the lymph system. Sources of potassium are raw, bitter greens, such as watercress, endive, parsley, potato peel broth, grapes, and other bitter fruit.
- Cell salts—Kali Phos (follow dosage instructions on bottle).
- Cleavers and mullein (whole herb) are specific herbs for congested, swollen lymphatics. Mix 1-oz of each dried herb and store in a glass jar in a dark cupboard. Prepare as a tea using 1-t of dried herb mixture per 1-cup of hot water. Drink 1-cup per day for two weeks, every three months as a tonic.



## DIETARY SUPPLEMENT HIGHLIGHTS

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### **An Introduction to the Dietary Reference Intakes**

The Food and Nutrition Board established the Recommended Dietary Allowance or RDA guidelines in the United States. Since the 1940s, this Board has periodically prepared a brochure listing the RDAs of human mineral and vitamin requirements. However, they are only estimates based on the present state of knowledge and do not take into account individual variations. Be aware that the RDA, or Recommended Dietary Allowance, does differ depending on the country. Mostly, the RDA we advise is from the United Kingdom or USA. The Recommended Daily Allowance or RDA assumes that all human vitamin and mineral requirements have been discovered. In the United States the Food and Nutrition Board is under the auspices of the National Research Council of the National Academy of Sciences. It is composed of scientists and nutritionists.

The RDA is generally the minimum requirement required to avoid a deficiency. Particular requirements or therapeutic dosage can differ depending on individual factors, genetics, environmental influences, and the presence of disease factors.

The DRI Committee<sup>12</sup> is currently replacing RDAs with single nutrient monographs called Dietary Reference Intakes, or DRI. The Committee is undertaking a series of reports to present reference values for the intake of nutrients by Americans and Canadians.

DRI are reference values for planning and assessing diets for a healthy population. DRI encompass:

- Estimated Average Requirements (EAR);
- Recommended Dietary Allowance (RDA);
- Adequate Intake levels (AI); and



- Tolerable Upper Intake Levels (UL).

It is important to remember that the RDA and AI are nutrient levels that should decrease the risk of developing a condition related to a nutrient deficiency or associated with a negative functional outcome. This level would not necessarily replete undernourished individuals and would not be adequate for diseased states that increase requirements.

The RDA is a goal for dietary intake by individuals. It is not for assessing diets or planning diets. The AI is used if there is insufficient scientific evidence to calculate an EAR. It will usually exceed the EAR and possibly the RDA. A UL or Tolerable Upper Intake Level is the maximum level that is unlikely to pose risks of adverse health effects in almost all individuals in the target group.

DRI are a new paradigm for the nutrition community. A specific indicator of nutrient adequacy defines three of the reference values (RDA, AI and EAR). This may relate to the reduction of the risk of chronic disease or disorders. A specific indicator of excess defines the fourth, the UL, where one is available. In the former paradigm, using RDA's alone, the indicator of adequacy was usually limited to a classic deficiency state. The role of diet in chronic disease has now expanded sufficiently to move beyond deficiency indicators to indicators with broader functional significance. Examples are those indicators related to decreasing the risk of chronic diseases such as osteoporosis, heart disease, or hypertension.

## Measuring Vitamins

Vitamin's A and E are often measured in International Units (IU), which refers to a molecular quantity and not weight. Vitamins are also often measured in milligrams (mg) or micrograms (mcg) with 1 mg = 1000 mcg. The relationship between IU and mgs can vary depending on the particular vitamin or compound involved.

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<sup>12</sup> The Standing Committee on the Scientific Evaluation of Dietary Reference Intakes of the Food and Nutrition Board, Institute of Medicine, National Academy of Sciences

## Milk does not effect antioxidant properties of tea

The antioxidant qualities of your cup of green or black tea (*Camellia sinensis*) are well known, but adding milk to your tea has caused controversy. A paper published in 1996<sup>13</sup> indicated that milk inhibited the bioavailability of the antioxidant tea polyphenols, with researchers hypothesizing that the milk proteins were binding with the tea polyphenols, leaving them unable to be absorbed. A more recent study<sup>14</sup> showed that adding milk did not significantly alter the effect of drinking tea on increasing plasma antioxidant activity. The researchers explained the previous study results as possibly due to a less reliable measurement of the antioxidant blood level. However, the study did show that green tea caused a greater increase in plasma antioxidants and catechin levels than black tea.

## Herbal tea shown to be helpful for sore throat

A double-blind, randomized, controlled study showed that an herbal tea containing demulcent herbs, including licorice and marshmallow roots, was shown to be effective for decreasing the pain of acute pharyngitis, the common sore throat. The relief was seen after five minutes and lasted for 30 minutes.<sup>15</sup>

## Glucosamine may slow joint deterioration in osteoarthritis

A study in *The Lancet*<sup>16</sup> suggests that the dietary supplement glucosamine sulfate may reduce the symptoms of osteoarthritis and prevent joint structure changes.

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<sup>13</sup> Serafini M, Ghiselli A, Ferro-Luzzi A. 1996. *In vivo* antioxidant effects of green and black tea in man. *Eur J Clin Nutr* 50:28-32.

<sup>14</sup> Lenan R, Roodenburg AJC, Tijburg LBM, Wiseman SA. 2000. A single dose of tea with or without milk increases plasma antioxidant activity in humans. *Eur J Clin Nutr* 54:87-92.

<sup>15</sup> Brinckmann J, Sigwart H, van Houten Taylor L. 2003. Safety and efficacy of a traditional herbal medicine (Throat Coat) in symptomatic temporary relief of pain in patients with acute pharyngitis: a multicenter, prospective, randomized, double-blinded, placebo-controlled study. *J Altern Complement Med* 9: 285-98.

<sup>16</sup> McAlindon T. 2001. Glucosamine for osteoarthritis: dawn of a new era? *Lancet*. 357:247-248. Reginster JY, Deroisy R, Rovati LC, et al. 2001; Long-term effects of glucosamine sulphate on osteoarthritis progression: a randomized, placebo-controlled clinical trial. *Lancet*. 357:251-256.

Standard osteoarthritis treatment consists of controlling pain and improving function. There are currently no pharmaceuticals that can slow or prevent the progression of the disease.

Several trials have indicated that supplements of glucosamine sulfate, naturally found in the cartilage matrix and synovial fluid, can improve symptoms of osteoarthritis. Jean Yves Reginster of the University of Liege, Belgium, and colleagues set out to determine if glucosamine sulfate could slow the progression of the disease, as well.

Reginster and colleagues studied 212 patients over 50 years of age, with mild to moderate knee osteoarthritis. The subjects were randomized to receive either glucosamine sulfate (1500 mg/day) or placebo for three years. They were allowed to take analgesics (paracetamol) or non-steroidal anti-inflammatory drugs (NSAIDs) for pain.

Joint structure changes were indicated by joint-space width in the medial compartment of the tibiofemoral joint using digital image analysis. Osteoarthritis symptoms (joint pain, stiffness, limitation of physical function) were measured using a patient questionnaire.

While subjects in the placebo group experienced significant joint-space narrowing, those in the glucosamine sulfate group experienced no narrowing after three years of treatment. Pain and physical function significantly improved in the glucosamine sulfate group, compared with the placebo group, but stiffness was unaffected.

Adverse events occurred in most patients. Abdominal pain, increased blood pressure, and diarrhea were the most commonly reported events in both groups. No alterations in glycemic control were noted, in contrast to concerns that glucosamine may alter blood glucose levels in diabetics.

Tim McAlindon of the Arthritis Center at Boston University Medical Center describes the study as “a landmark” in osteoarthritis research. According to McAlindon, Reginster et al’s results should prompt health care professionals to “accommodate the possibility that many nutritional products may have valuable therapeutic effects.”

A large multicenter trial of glucosamine and chondroitin (another dietary supplement used for osteoarthritis) funded by The National Center for Complementary and Alternative Medicine (NCCAM) and the National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS) is now underway. More information is available at: <http://nccam.nih.gov/news/19972000/121100/qa.htm>.

### **Soy may decrease hot flashes**

Consuming soy products may decrease the frequency and severity of hot flashes, according to the results of a study published in the *American Journal of Epidemiology*.<sup>17</sup>

Phytoestrogens are compounds found in plants, such as soy, which are structurally similar to endogenous estrogens. It has been hypothesized that high consumption of soy products may alleviate some symptoms of menopause. One example, the low frequency of menopausal symptoms (such as hot flashes), in Japanese women has been credited to the high consumption of soy products in Japan.

In the current study, Nagata et al investigated whether soy product intake was prospectively associated with the onset of hot flashes in a cohort of 1,106 female residents of Takayama, Gifu, Japan.

At the time of entry into the study (September 1992) the women were between the ages of 35 and 54 years and premenopausal (none had experienced any hot flashes). Dietary history was assessed with a 169-item semi-quantitative food frequency questionnaire, including nine items for specific soy products. A follow-up questionnaire assessing frequency and severity of hot flashes was sent to the participants in 1998.

A total of 101 women reported experiencing moderate to severe hot flashes during the study period. After data were controlled for age, total energy intake, and menopausal status, a significant inverse correlation was noted between hot flashes

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<sup>17</sup> Nagata C, Takatsuka N, Kawakami N, Shimizu H. 2001; Soy product intake and hot flashes in Japanese women: results from a community-based prospective study. *Am J Epidemiology*. 153(8):790-793.

and soy product intake, both in terms of total amount ( $p=0.002$ ) and isoflavone intake ( $p=0.0008$ ).

“Although traditional hormone replacement therapy is effective in controlling hot flashes, compliance with this therapy is not great, and there is a desire for a more natural approach to the management of menopausal symptoms,” Nagata et al note. They conclude, “Our findings suggest that consumption of soy products is a practical strategy for preventing hot flashes.”

Another study, published in the journal *Menopause* in 2002, found that a standardized soy isoflavone extract had a significant decrease in the number of hot flashes they had per day.<sup>18</sup>

## Iron Deficiency

Iron deficiency is common in women and children throughout the world. About 18% of U.S. women and 40-80% of women worldwide are deficient in iron. Iron deficiency anemia is the most common anemia in children and new mothers. Women who are physically active, dieting, or vegetarians are at particularly high risk for iron depletion. Even if the low iron levels are not severe enough to cause anemia, women may notice that being active takes more effort. Supplementing iron, in one study, showed an improvement in exercise performance.

However, too much iron is also not good. Women who have high levels of iron are shown to be at risk for developing diabetes. Men, who do not lose blood every month like women do, are more prone to having too much iron rather than too little. A blood test, known as serum ferritin, can show what your body's iron stores are.

So the bottom line is, as always, everything in moderation. Getting your iron from your diet is always better than taking an iron pill. Women in their childbearing years and children are the ones who need to make sure they get enough iron. Red meat is high in absorbable iron. For vegetarians, having citrus fruit and juice with meals

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<sup>18</sup> Faure ED, Chantre P, Mares P. 2002. Effects of a standardized soy extract on hot flushes: a multicenter, double blind, randomized, placebo-controlled study. *Menopause*. Sep-Oct;9(5):329-34.

improves the absorption from iron-rich foods, such as legumes, whole grains, and green vegetables. Floradix, a dietary supplement, contains highly absorbable iron from plant sources.<sup>19</sup>

Here is a good recipe for getting extra iron in your diet:

### **Iron Tonic**

1-cup organic, black strap molasses

1-cup organic apple cider vinegar

Blend both ingredients in blender and refrigerate. Take 1-T daily.

### **Avoid Iron Deficiencies in Children**

Researchers have found that children with a severe iron deficiency in infancy are at greater risk of becoming adolescents with learning and behavioral problems. In a study of Costa Rican children aged 11–14, those with severe, chronic iron deficiency as infants had more problems than children who had sufficient levels of iron.

The children who were iron-deficient performed more poorly in writing and arithmetic. They also did not do as well on tests of short-term memory and took longer to determine if two objects were the same or different.

“More of the formerly iron-deficient children had repeated a grade and/or been referred for special services or tutoring,” reported Dr. Betsy Lozoff, of the University of Michigan in Ann Arbor, and colleagues. “Their parents and teachers rated their behavior as more problematic in several areas, agreeing in increased concerns about anxiety/depression, social problems, and attention problems.”

The study included 48 children who had suffered from chronic severe iron deficiency in infancy and 114 children who had “good iron status” either before or after receiving iron therapy as infants.

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<sup>19</sup> Available at the Apothecary Shoppe College Store: <http://www.apothecary-shoppe.com>.

All of the children had sufficient iron and exhibited normal growth patterns after infancy.

The authors note that it is not clear why the iron deficiency in infancy would have an effect on learning and behavior. Also, the study could not conclusively prove that iron deficiency, and not some other nutritional or life factor, was to blame for the learning and behavior problems. Nevertheless, the researchers suggest that children with severe iron deficiency may require special help in addition to iron therapy.

“Even more importantly, preventing iron deficiency might help foster the behavior and development of disadvantaged infants throughout the world,” Lozoff and colleagues write.<sup>20</sup>

These findings have important implications, as between 20-25% of children worldwide have anemia<sup>21</sup> due to severe iron deficiency. The problem is less common in the U.S.; however, 5% of lower-income African-Americans and up to 18% of Mexican-American infants and toddlers are iron-deficient, according to a report in the April 2000 issue of *Pediatrics*.

## Calcium Deficiency

Even though the word is out that calcium is essential for healthy bones, it seems that women are still not getting enough calcium in their diet, according to a recent study. The National Institutes of Health (NIH) recommends a DRI (dietary reference intake) for calcium of 1,200 to 1,500 mg/day in teens and young adults, to build healthy bones. Results of dietary surveys show that average calcium intake in girls and young women is often less than 900 mg/day.

After age 30 and before menopause in women, and before age 50 in men, the DRI is 1,000 mg/day. In adults older than 65, calcium deficiency is common due to

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<sup>20</sup> Lozoff B. MD, Jimenez E. MD, Hagen J. PhD, Mollen E. PhD, and Wolf AW. PhD. *Pediatrics* Vol. 105 No. 4 April 2000. Poorer Behavioral and Developmental Outcome More Than 10 Years After Treatment for Iron Deficiency in Infancy.

<sup>21</sup> Anemia: a reduction in oxygen-carrying hemoglobin in the blood.

decreased calcium intake and absorption and decreased vitamin D intake and synthesis. The DRI for calcium for this group is 1,500 mg/day.

Nonfat or low-fat (1% fat) dairy products (such as milk and yogurt) are excellent sources of calcium. Calcium from vegetables (such as broccoli, cabbage, and greens) is absorbed to a higher degree than calcium from dairy sources, but their relatively low calcium contents can make getting enough calcium just from vegetables difficult. More and more calcium-fortified foods and beverages are appearing in the marketplace, such as orange juice with added calcium. Calcium supplements (in the form of carbonate or citrate) may be helpful for those that are not eating enough dairy or vegetables.

### **Learn to Read Food Labels**

The American Dietetic Association is helping to educate consumers by compiling a glossary of food label claims:

- Low calorie: less than 40 calories per serving.
- Low cholesterol: less than 20 mg of cholesterol and 2 g or less of saturated fat per serving.
- Reduced: 25% less of the specified nutrient or calorie.
- Good source of: at least 10% of the daily value of a particular vitamin or nutrient per serving.
- Calorie Free: less than five calories per serving.
- Fat free/sugar free: less than 1/2-g of fat or sugar per serving.
- Low sodium: less than 140 mg of salt per serving.
- High in: provides 20% or more of the Daily Value of a specified nutrient per serving.
- High fiber: five or more grams of fiber per serving.
- Lean meat, poultry, seafood: 10 g of fat or less, 4.5 g of saturated fat, and less than 95 mg of cholesterol per 3-ounce serving.
- Light: one third fewer calories or one half the fat of the usual food.
- Healthy: decreased fat, saturated fat, sodium and cholesterol and at least 10% of the daily value of vitamins A and C, iron, protein, calcium and fiber.



For other great nutrition information visit the American Dietetic Association website at: [www.eatright.org](http://www.eatright.org).

## HEALTH HAZARDS

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The following are additives in our food and contaminants in our environment that are known to speed up the aging process.

### Salt (sodium chloride)

Salt is one of the most over-used food additives in our society and the cause of many health problems. Salt is added to most processed foods: Even breakfast cereals have salt added. Remember to read labels when you buy processed food; you will be surprised how many foods contain sodium chloride, which is salt!

The following chart will help you identify foods high in salt and to minimize your intake.

### Where the Sodium Is

FOOD	SERVING SIZE	SODIUM (MILLIGRAMS)
Antacid sodium bicarbonate in water	1	564
Apple	1	2
Apple pie	1/8, frozen	208
Applesauce	1-cup	6
Bacon	4 slices	548
Bread	1 slice, white	114

Butter	1-T unsalted	2
Butter	1-T salted	116
Canned corn	1-cup	384
Canned tuna	3-oz	384
Chicken	1/2-breast	69
Chicken dinner frozen	1	2,243
Chicken pie	Frozen	907
Club soda	8-oz	39
Corn on cob	1	1
Corn flakes	1-cup	256
Cottage cheese	4-oz	457
Cucumber	7 slices	2
Cucumber	With salad dressing	234
Dill pickle	1	928

Dry milk	1/2-cup	322
English muffin	1	293
Grape jelly	1-T	3
Grapes	10, seedless	1
Ham	3 oz	1,114
Instant mashed potatoes	1-cup	485
Jumbo burger	1	990
Lemon	1	1
Margarine	1-T	140
Meat loaf Frozen dinner	1	1,304
Milk	1-cup	122
Pork	3-oz	59
Potato	1	5
Potato chips	10	200
Pound cake	1 slice	171

Salt	1-t	1,938
Soy sauce	1-T	1,029
Steak	3-oz	55
Tomato	1	14
Tomato sauce	1-cup	1,498
Tomato soup	1-cup	932
Fresh tuna	3-oz	50
Tuna pot pie frozen	1	715
Water	8-oz, tap	12
White wine	4-oz, domestic	19

Salt is known to cause hardening of the arteries, which must remain elastic to perform their task of carrying the blood throughout the body. Hardened arteries are a major cause of high blood pressure, reduced memory and alertness, poor hearing and sight and, ultimately, strokes and cerebral hemorrhage.

Salt stiffens the body, resulting in hardened joints and arthritis. It also retains fluid in the tissues which, if excessive, can cause heart and kidney problems.

With all these facts, what stops us from throwing away our saltshaker? The use of salt is addictive. As an experiment, don't add salt to your food for one week. Be sure to select low or no sodium foods if you buy readymade. Observe the change in taste.

Does everything taste bland? Do you develop cravings for sweet or salty foods? If you want, continue to reduce your table salt intake after the week is up.

Many people question giving up salt, as they have been told that the body needs salt. Do not confuse the mineral sodium (which we do need) with the sodium chloride found in table salt. The body does need organic sodium. However, sodium deficiencies are rare, as it is naturally plentiful in many vegetables and fruits.

The body also requires iodine. Iodine was added to table salt to decrease the risk of thyroid deficiencies, as it is more difficult to provide in the daily diet, particularly if the soil is known to be deficient in iodine. Iodine is vital for the optimum functioning of the thyroid gland. As you reduce your salt intake, look for other sources of iodine, such as seafood and kelp.

Kelp provides both natural sodium and iodine, plus it is high in many other minerals and trace elements. It is available in powder, granules, and tablets. Kelp granules are by far the most pleasant. Sprinkle them on your food, or add to soups, stews, and sandwiches. One to two teaspoons a day is all you need to provide you with most of the body's mineral requirements.

While you are in the transition stage of giving up salt, mix kelp granules and salt, half-and-half, in your saltshaker. Gradually add more and more kelp. Over a month or two your cravings will reduce and you will perceive delicate flavors that salt had previously masked.

## SIMPLE CARBOHYDRATES

Other foods that can speed up the aging process are white flour (including white flour products) and sugar. Both these foods not only use up nutrients as they are being metabolized, but they mask the body's need for basic nutrients. They also cause a sharp increase in blood sugar, followed by a slump in energy as your body processes the sugar. High intake of these simple carbohydrates is thought to contribute to pre-diabetic conditions and insulin resistance. It is not uncommon to see overweight, yet malnourished children, reared on processed, refined foods. Their appetites have been

taken care of with white bread, chips, cookies, and sodas, and their bodies are crying out for nutrients.

## SMOKING

Smoking is a major factor in premature aging and ill health. Even if you do not smoke, if you are unfortunate enough to live or work with someone who does, you passively smoke one cigarette for every four they smoke. For every cigarette, the body uses up twice the amount of vitamin C available in one orange. This is quite apart from the side effects of lung cancer and high blood pressure. Giving up is hard. Like salt, smoking is addictive. There is only one way—STOP NOW!

There are a number of complementary and alternative protocols that have helped people to quit smoking:

- Take extra vitamin C and niacin.
- Take wild oat tincture: 10-drops, 3 times a day.
- Use peppermint essential oil: Every time you crave a cigarette, take 1-drop, no more, of peppermint oil on the tongue or on a sugar cube.
- Black pepper essential oil has been shown to reduce cravings. Place 3-drops of black pepper essential oil on a cotton ball and inhale each time you experience a craving.
- Acupuncture has been shown to help. See a licensed acupuncturist in your state.
- Nicotine patches and gums can help wean you off nicotine slowly. Many object to the idea of putting more nicotine into your system, but as a last resort, these may help.
- Hypnosis.
- Homeopathic products.
- Try herbs to support liver detoxification and lung recovery: Dandelion, yellow dock, and burdock are all good: Mix 1-oz of each and simmer in 3-pints of water for 10 minutes. Take 1-T, 3 times daily, or when a craving occurs.

ACHS graduate and current Advisory Board Member Edward Blomgren, Ph.D., has published a book on quitting smoking and has a successful stop smoking coaching

business. His book, *Conquer Tobacco Naturally*, is available at the Apothecary Shoppe College Store.

## LEAD

Lead is a highly toxic trace mineral. Lead poisoning has increased dramatically in recent years, because of increased exposure to atmospheric lead and as people remodel older homes that were painted with lead-based paint earlier in the 20<sup>th</sup> century. Children are particularly susceptible to lead poisoning.

Lead enters the body through ingestion and inhalation, moves into the blood, and is stored in the bones and soft tissues, including the liver. The body can only eliminate a minimal amount of lead.

Lead enters the body from canned fruit juices, drinking water, lead in pipes, cosmetics, cigarette smoking, car exhausts, and the paint on old houses.

Acute lead toxicity manifests as abdominal colic, dysfunction of the brain, and anemia. It can attack the central nervous system and may be linked with hyperactivity in children.

To protect the body against lead, try:

- Vitamin C is a powerful neutralizer against the toxic effects of lead, and will protect muscle tissue from lead damage. The therapeutic daily intake is between 1,000 to 3,000 mg, which is higher than the DRI.
- Vitamin B1 will also protect against damaging effects. A suggested amount of 25 to 50 mg of vitamin B1, plus one high-potency B complex tablet each day.
- A diet high in calcium and adequate vitamins A and D, plus 2-t of kelp granules daily will also help prevent the toxic effects of lead.

If you suspect you or your children have been exposed to lead, have your primary care physician perform blood tests.



Remember, the best way to prevent lead toxicity is not to be exposed to it. Make sure all lead paint is removed from walls and pipes, and avoid canned juices and cigarette smoking. If you live in an older house, be sure to damp mop to avoid stirring lead dust into the air and use a HEPA filter on your vacuum cleaner. Paint over all flaking paint to seal it and be sure to use a special dust mask when prepping and painting. The switch to lead-free gasoline has decreased the amount of lead from car exhaust.

## VITAMIN AND MINERAL SUPPLEMENTS

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Do we need to take pills if we eat a good diet? This question is often asked when people are restructuring their nutritional program and improving their health.

Obviously, our internal make-up and metabolism are as unique and individual as our physical appearance. It follows that our nutritional needs will be quite different. Your body may run efficiently and effectively on 100 mg of vitamin C a day, while another person may require 1,000 mg to stay healthy.

Factors that should influence your decision to use supplements or not include:

- Are you under extra stress?
- Do you live in a polluted environment?
- Do you drink water that contains chloride and fluoride?
- Do you smoke or live or work with a smoker?
- Do you work under fluorescent lighting?
- Do you drink more than 4 cups of tea or coffee per day?
- Are you using drugs, prescription or otherwise? (For example, smoking marijuana uses vitamin C, magnesium, and zinc, and many prescription drugs, such as oral contraceptives, use nutrients in the body.)
- Do you drink alcohol?
- Do you use oral contraceptives?
- Does your energy level fluctuate despite a nourishing whole food diet?
- Do you eat non-organic foods daily?
- Are you recovering from a cold, illness, or surgery?
- Do you suffer from allergies?

If you can say YES to just one of these, you should consider supplementing your daily diet with extra nutrients. The following is just to get you started. You may want to add other nutrients, such as zinc, or antioxidants, such as selenium.

## DAILY SUPPLEMENTS

The suggested intake is for maintenance only. You may find you need more or less. Most of these supplements, particularly vitamins C, A, and E, will have a drug-like role in the body if used in a large enough dose. For example, 100 to 500 mg of vitamin C will keep the body functioning, but if you are coming down with a cold or are particularly stressed, 1,000 to 2,000 mg may have a noticeable beneficial action and may assist with colds and infections.

### Vitamin A

Vitamin A helps to protect the body from lead poisoning and chemical preservatives. However, since vitamin A is fat-soluble and stored in the body, too much may lead to toxicity and even severe liver damage. Excessive vitamin A has also been shown to cause damage to unborn children. For this reason, the Institute of Medicine advises women who may become pregnant not to take more than 5,000 IU or 700 mcg per day. Beta-carotene is a water-soluble form of vitamin A and may be a better choice for those with compromised livers or women in their childbearing years.

Suggested use: Men/Women 5,000-IU daily.

### Bioflavonoids (vitamin C & P)

Vitamin C is a powerful neutralizer of environmental poisons and protects the body from the damaging effects of stress.

Suggested use: Men/Women 500–2,000-mg daily.

### Vitamin C and Cataracts

A study published in the *Journal of Clinical Epidemiology* found that vitamin C may provide protection against the development of cataracts.<sup>22</sup> Cataracts are one of the

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Smith K, Lead CDFS-193-97, Ohio State University Extensions Fact Sheet

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American College of Healthcare Sciences

leading causes of blindness among adults. This is the first study to report an association between vitamin C and cataract risk in a representative sample of older Americans.

The study by Joel Simon, MD, MPH, assistant professor of medicine and epidemiology at the University of California, and staff physician at the San Francisco VA Medical Center, found that each 1-mg increase in blood vitamin C levels was associated with 26% lower prevalence of reporting a cataract.

The study evaluated the relation between serum levels of vitamin C and incidence of self-reported cataract among 4,001 men and women between 60 and 74 years of age, enrolled in the Second National Health and Nutrition Examination Survey (NHANES II). Dr. Simon found that higher blood levels of vitamin C were associated with a decreased prevalence of cataract, independent of the effects of other predictors of cataract, such as increasing age, smoking, and diabetes.

A cataract is a cloudy area in the lens of the eye that blocks incoming light, making vision blurry and distorted, often interfering with daily functions, such as reading or driving a car. Cataracts are a common part of aging and develop slowly over many years. Cataract accounts for one out of every seven cases of blindness in Americans aged 45 and older. After 65, almost everyone has some degree of cataract formation. Surgery to remove the diseased lens is currently the only medical treatment for cataract, and there are nearly two million cataract surgeries performed in the U.S. each year.

Dr. Simon notes: "Accumulation of free radicals in the lens of the eye may lead to oxidative damage of lens proteins, which over time can result in cataract formation."

Exposure to sunlight and to oxidants, such as cigarette smoke, may contribute to free radical formation. Vitamin C, an important antioxidant normally present in high

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<sup>22</sup> Simon JA, Hudes ES *J Clin Epidemiol*. 1999; Serum ascorbic acid and other correlates of self-reported cataract among older Americans. Dec;52(12):1207-11. Hoffman La-Roche, Inc., in part supported this study. Source: PR Newswire.

concentrations in the lens, may reduce the risk of cataract because it protects lens proteins against oxidative damage.

Studies have shown as little as 250 mg a day of vitamin C to be effective in delaying cataract formation. However, according to USDA data, the average intake of vitamin C is 100 mg per day.

“Our findings concur with other scientific data supporting a link between vitamin C and the development of cataracts,” said Simon. “This data, together with the results from some previous studies, suggest that vitamin C may substantially reduce the risk of age-related lens opacities.”

## **B Complex**

B vitamins protect the nervous system from excessive stress.

A good quality B Complex, containing daily at least:

- B1 100-200 mg
- B2 50-100 mg
- B3 100-1,000 mg
- B5 50 mg
- B6 50-200 mg
- B9 (Folic acid) 400 mcg
- B12 200-1,000 mcg
- 50 mg
- Choline, inositol, and PABA

### **Vitamin E (natural)**

Vitamin E is the main fat-soluble antioxidant in our body. It protects the body from the effects of environmental toxins, such as air pollution.

Suggested use: Men/Women 400-800-IU daily.

Vitamin E is a natural blood thinner, so vitamin E supplements should be used with care in those taking blood-thinning medications.

### **Kelp Granules**

Kelp protects against radioactivity and provides all the essential minerals.

Suggested use: 2-t daily.

### **Lecithin**

Lecithin is a good source of choline. Choline is a precursor for acetylcholine, a major neurotransmitter, and phospholipids, which make up the membranes of every cell, including brain cells and betaine, which protect the digestive tract from invaders. Some studies have suggested that lecithin may help improve memory.

Suggested use: 2-t of lecithin granules per day.

## HERBAL SUPPLEMENTS

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There is no one herb that will prevent the inevitable process of aging or provide the much sought after elixir of youth. However, the consistent use of herbs, along with improved nutrition, exercise, and relaxation, will rejuvenate and slow aging. The use of herbs should be a daily habit, as they supply extra nutrients and trace elements in addition to their particular healing properties.

The following herbs are all stocked with nutrients and active constituents that will rejuvenate and tone the body's organs if used consistently over time. Try to include some of these herbs in your daily diet. Use them as teas, sprouts, in salads, or steamed with vegetables: Alfalfa, cayenne, chickweed, cleavers, dandelion, dong quai, elderflowers and berries, garlic, ginger, ginseng, licorice, parsley, sarsaparilla, and watercress.

### Ginkgo

Ginkgo (*Ginkgo biloba*) has been shown to improve blood flow to the brain. Studies have illustrated its usefulness for those with memory loss and tinnitus (ringing in the ears).<sup>23</sup> It may take six weeks to see results. For most effectiveness, try to obtain the standardized dry extract taken from the leaves. Ginkgo may interact with some prescription medications, especially blood thinners and digoxin, so, if you are on medications, check with your health care provider before taking ginkgo. Suggested use: 120 to 240 mg daily.

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<sup>23</sup> Ernst E, Stevinson C. *Clin Otolaryngol* 1999; *Ginkgo biloba* for tinnitus: a review. 24: 164-7.



Figure 1: *Ginkgo biloba*. Photograph: Steven Foster.

### Saw Palmetto Berry

Clinical trials have shown saw palmetto berry to be supportive for enlarged prostates in men, with few side effects. The herb helps to decrease the need to urinate frequently, rather than reducing the size of the prostate itself.<sup>24</sup>

Suggested use: 0.5-1-gm of dried berry or 0.6-1.5-ml extract daily.



Figure 2: *Saw Palmetto Berry*. Photograph: Steven Foster.

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<sup>24</sup> Gordon AE, Shaughnessy AF. 2003. Saw palmetto for prostate disorders. *Am Fam Physician*. Mar 15;67(6):1281-3.



## St. John's Wort

St. John's Wort (*Hypericum perforatum*) is enjoying a huge increase in popularity as a support for mild to moderate depression. Its effectiveness for major depression has not yet been proven.

### St. John's Wort Preferred in Comparison Study

A study in the British Medical Journal (September 2, 2000) concludes that an extract of St. John's wort was as effective as a widely prescribed drug in treating mild to moderate depression. The study involved a six-week randomized, double-blind trial involving 324 outpatients. It was conducted by Helmut Woelk, Medical Director of the Psychiatric and Psychotherapy Clinic at Giessen University in Germany. Patients were given daily doses of either 150 mg imipramine or 500 mg St. John's wort extract standardized to 0.2% hypericin, extracted in ethanol 50% w/w (Remotiv ZE 117).



Measured by several standard depression test scores, and by both physician and patient, patients in both groups improved and there were no significant differences in outcomes between the groups. However, the researchers found St. John's wort was better tolerated, leading to their conclusion: "In view of the mounting evidence of hypericum's comparable efficacy to other anti-depressants and its safety record, hypericum should be considered for first line treatment in mild to moderate depression, especially in the primary care setting."

St. John's wort has been used since the time of Hippocrates for emotional states. Many contemporary studies have suggested St. John's wort is effective for management of mild to moderate depression, but have been criticized for design, methodology, and statistical analysis, an issue that the authors of this study address. The authors also note the benefits of St. John's wort for mild cases of depression, where patients often choose to live with the effects of the depression rather than with the side effects of prescription medication. The authors also note the possible interactions of St. John's wort with concomitant ciclosporin, digoxin, indinavir, and theophylline. Read the full text of the journal article at: <http://www.bmj.com/cgi/content/full/321/7260/536>.

## Study Finds St. John's Wort Ineffective for Major Depression

A study published in the *Journal of the American Medical Association*<sup>25</sup> suggests that St. John's wort is no more effective than a placebo for the treatment of major depression. The double-blind, randomized, controlled trial was funded by pharmaceutical manufacturer Pfizer and the National Institute of Mental Health.

The study participants were 200 adult outpatients diagnosed with single episode or recurrent major depressive disorder, to receive either St. John's wort (900–1,200 mg/day) (n=98) or placebo (n=102) for eight weeks. Contrary to the results of previous studies, Shelton et al found no significant differences between the herb and placebo on any of the outcome measures used (including the Hamilton Rating Scale for Depression and the Beck Depression Inventory). St. John's wort also failed to produce significant differences versus placebo on the Hamilton Anxiety Scale and the Global Assessment of Function.

While the authors of this study claimed others had “serious methodological flaws,” critics of this study have been quick to comment. They note that only patients with major depression were included. Other studies have concluded that St. John's wort is as effective as pharmaceuticals for mild to moderate depression. Any failure to remedy major depression should not discount the effectiveness of St. John's wort for mild to moderate depression, particularly given the lower incidence of any side effects, a problem with many prescription medications used for mild to moderate depression.

A recent study showed that St. John's wort taken orally does not cause phototoxic effects.<sup>26</sup>

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<sup>25</sup> Shelton RC, Keller MB, Gelenberg A, et al. 2001. Effectiveness of St. John's Wort in major depression: a randomized controlled trial. *JAMA*. 285(15): 1978-1986.

<sup>26</sup> Schempp CM. 2001. Single-dose and steady-state administration of *Hypericum perforatum* extract (St. John's Wort) does not influence skin sensitivity to UV radiation, visible light, and solar-simulated radiation. *Arch Dermatol*. 137:512-513.

Seventy-two healthy volunteers were randomized to receive a single oral dose (5,400–10,800 mcg) or sustained doses (1,800 plus 2,700 mcg, tid) of hypericum extract LI 160, for seven days. After both the single dose and the sustained dose, patients were evaluated for erythema and melanin indices after exposure to UV-B, UV-A, and sunlight. No significant changes of erythema threshold levels could be detected in either group.

“These results do not provide evidence for a phototoxic potential for the antidepressant hypericum extract LI 160 in humans when administered orally,” the researchers conclude.

### ***Agnus castus* extract may be supportive for PMS**

A study published in the *British Medical Journal*<sup>27</sup> suggests that chaste tree or chaste berry (*Agnus castus*) may effectively relieve the symptoms of premenstrual syndrome (PMS).

Chaste tree is used in Europe as a standard treatment to relieve breast tenderness associated with PMS, general PMS symptoms, and menstrual irregularities. The herb contains a mixture of iridoids and flavonoids. Some researchers suggest that chaste tree works by reducing stress-induced prolactin secretion and by binding to opioid receptors, although scientific evaluation of its efficacy and mechanism of action is still forthcoming.

In the randomized, double-blind, placebo-controlled study, researchers from Germany's Institute for Health Care and Science compared the effects of chaste tree (20 mg/d of Ze 440 extract tablets) with placebo in 170 women with PMS over three menstrual cycles. The primary outcome measure was change from baseline to the end of the third menstrual cycle in women's self-assessment of irritability, mood alteration, anger, headache, breast fullness, bloating, and other menstrual symptoms.

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<sup>27</sup> Schellenberg R. *BMJ*. 2001; Treatment for the premenstrual syndrome with agnus castus fruit extract: prospective, randomised, placebo controlled study. 322:134-137.

At the end of the treatment period, women who received the herbal extract reported significant improvements in their overall symptoms, compared with those who received placebo. Irritability, mood alteration, anger, headache, and breast fullness were markedly improved, while bloating was unaffected. Physicians also confirmed these effects.

Adverse events were rare and included mild acne, multiple abscesses, intramenstrual bleeding, and urticaria.

Because the treatment of PMS is challenging and the symptoms are often debilitating, the researchers conclude that chaste tree is “an effective treatment for women with premenstrual syndrome” and should be “considered a therapeutic option in women in whom a causal origin for this syndrome cannot be established.”

Because chaste tree may modulate prolactin levels, it should not be taken during pregnancy or lactation, or concomitantly with hormone therapy and drugs that act on the pituitary.

### **Peppermint oil eases pain in children with irritable bowel syndrome**

A study in the *Journal of Pediatrics*<sup>28</sup> suggests that peppermint oil may significantly reduce the pain children experience during acute phases of irritable bowel syndrome (IBS).

According to a classic 1958 study of abdominal pain in children, more than 10% of all school-aged children have recurrent abdominal pain, severe enough to interfere with their daily living. While several studies have suggested the variable efficacy of peppermint oil in adults with IBS, a recent meta-analysis by Pittler and Ernst

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<sup>28</sup> Apley J, Naish N. 1958. Recurrent abdominal pain, a field survey of 1000 school children. *Arch Dis Child.* 33:165-170. Kline RM, Kline JJ, DiPalma J, Barbero GJ. 2001. Enteric-coated, pH-dependent peppermint oil capsules for the treatment of irritable bowel syndrome in children. *J Pediatr.* 138(1):125-128. Pittler MH, Ernst E. 1998. Peppermint oil for irritable bowel syndrome: a critical review and metaanalysis. *Am J Gastroenterol.* 93:1131-1135.

concluded that the “role of peppermint oil [in IBS] has not been established beyond a reasonable doubt” for the use in adults.

In the randomized, double-blind, controlled trial, Kline et al of the University of Missouri-Columbia investigated the efficacy and clinical usefulness of pH-dependent, enteric-coated, peppermint oil capsules in the treatment of IBS symptoms in 42 children. The patients, between the ages of 8 and 17 years, were randomized to receive peppermint oil capsules (187 mg) or placebo (arachis oil) capsules for two weeks. Patients weighing more than 45 kg received two capsules tid and smaller children received 1 capsule tid. Clinicians ranked the severity of pain and change in symptoms on day 1 and day 14. The patients also completed a daily diary to report changes in severity of symptoms.



*Figure 3: Peppermint. Photograph: Steven Foster.*

After two weeks, 71% of the patients receiving peppermint oil reported feeling “better” or “much worse”, compared with 43% of those receiving placebo. The patients’ daily diary entries also indicated that the mean severity of pain symptoms in the peppermint oil group was significantly lower than the placebo group. Peppermint oil did not reduce other symptoms of IBS, such as heartburn, gas, urgency of stools, belching, stool pattern, or stool consistency. Patients in the peppermint oil group reported no side effects.

“To my knowledge, this is the first clinical study of its kind approved by the FDA for children,” Kline notes. “We have found a therapeutic agent that diminishes pain in children with IBS with very minimal side effects.”

Current medications used for IBS in children are sometimes unsuccessful in reducing the pain associated with the condition, Kline notes. Peppermint oil, he adds, may be a “promising alternative” to such medications. While Kline acknowledges that further studies with peppermint oil are warranted, he concludes, “peppermint oil should be considered for the treatment of moderate levels of pain in children with IBS.” Kline and colleagues hope to replicate their findings with a follow-up study in the near future.

## ESSENTIAL OILS

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There are many methods of using essential oils for wellness. We will introduce you to the most common and useful methods. What follows is an introduction to the various methods of administration.

Remember that information in this guide about aromatherapy is not intended to take the place of diagnosis and treatment by a qualified medical practitioner or naturopath. Aromatherapy is not a therapy that should be used exclusively. It is another tool in the natural healing repertoire. Before administering any essential oil, ensure you have thoroughly researched dosage recommendations and any contraindications.

### SAFETY FIRST

- Always use the stated dose as most essential oils are extremely potent and some have a low therapeutic margin. A smaller amount will often be more effective.
- A low therapeutic margin means that the dividing line between a beneficial dose and a toxic dose is very small.
- Do not allow contact with eyes or mucus membranes;
- Do not take essential oils orally except under supervision of a trained aromatherapist or healthcare professional;
- Educate yourself about the cautions and contraindications of each oil;
- Do not use essential oils if you have a preexisting condition, are pregnant or nursing, without educating yourself about that oil and its appropriate uses; and
- Keep all essential oils out of children's reach.

### LOSS PREVENTION TECHNIQUES

Essential oils are expensive, some more so than others. Rose, neroli, and jasmine are some of the most expensive, and you don't want to waste any!

Techniques to avoid loss include:

- If you purchase oils without an orifice reducer, buy one and add it, or ask your supplier for one.
- Avoid using a dropper as many expensive drops can remain inside the dropper after use.
- If you purchase oils in larger quantities, decant into a small bottle to avoid opening your large bottle repeatedly, which increases potential for oxidation and spills.
- Keep oils out of reach of children or the uneducated! Apart from the potential dangers should a child ingest the essential oil, he or she may very well empty the bottle on the floor. Someone who is not familiar with essential oils could very well add the entire bottle to a bath or to the washing machine water, when only a few drops are required.
- Only have one oil open at a time. This avoids potential spills and helps avoid volatilization and oxidation of your oils.



Blending formulas can be a frustrating experience if you create a blend in a large quantity only to find it does not have the aroma you had in mind. The following techniques may help you reduce your losses from failed experiments.

- To begin reduce the blend to 5-10-drops, not 100. When you have finished the blend, apply one to two drops to the perfume blotter. Allow a minute for evaporation. If the scent is not pleasing, the essential oil wasted is minimal.
- To test a blend you want to add to base oil, add 4-6-drops of the essential oil blend to 1-t of base oil. Rub it on the underside of your arm and allow it to blend with your skin's chemistry. Adjust if necessary and repeat the arm test.
- To test a blend you want to use in a diffuser, add 4-drops to 2-t of water and shake. If you do not like the aroma, you can still use the blend to clean and freshen counters, trashcans, drains, refrigerators, and pet areas. You can even prepare a very dilute formula with water and spray your plants with the aim of chasing away bugs.



## SELECTING A METHOD OF USE

When choosing a method of administration, consider the following:

### What are you hoping to achieve?

If you want to alleviate the itch of an insect bite, apply the essential oil to the bite. Inhalation is not likely to assist. If you have created a blend for stress relief and relaxation, the choices are wider: you could choose to administer this in a bath, in a diffuser, on a candle, in massage oil, in bath salts, or directly on the pillow.

### What are the contraindications and dosage for the oil?

Clove bud *Syzygium aromaticum* essential oil can be a helpful topical analgesic in a massage blend for sore muscles. However, if you use excessive amounts in a bath, it could irritate the skin. The heat and water exacerbate its potential skin irritant effects.

### What will you use and enjoy?

If you do not have a bathtub, creating a blend for a bath will not be helpful. Even if you have a bathtub, but seldom have time to take a bath and relax, you may be better to create a shower gel or diffuser blend. If you have young children and do not like using candles, try an electric diffuser. If you have dry skin, a salt rub may not be the best idea. Sugar is an effective alternative and will moisturize as well as exfoliate. Adding essential oils and a little base oil makes a great body scrub.

## TOPICAL APPLICATION TO THE SKIN

One of the easiest ways to use essential oils is to massage them directly into the skin.

Some essential oils can be applied undiluted directly onto the skin, but most oils are best diluted and blended with suitable base oil. In general, use about 10 to 20-drops of essential oil to  $\frac{3}{4}$ -oz of oil or 60-drops to  $3\frac{1}{4}$ -oz

Always apply a skin patch test before direct application. Remember to check the list of oils that can cause skin irritation.

Essential oils can also be added to ethyl alcohol, apple cider vinegar, sea salt, or Epsom salts and rubbed on the body for a stimulating rub. This is a wonderful bonus to showering in the morning. Try mixing rosemary oil into a natural salt base with the addition of a cold-pressed sweet almond oil for an invigorating morning skin scrub.



*Figure 4: Always apply a skin patch test before direct application.*

### **Salt or Sugar Scrub**

- 1 cup sea salt
- 2-T apricot or almond oil
- 5-6-drops essential oil (try rosemary or peppermint, or mix the two for an invigorating rub)

Put the salt into a bowl and add the oils. Mix together with hands. Store in covered container until ready to use. This will last for up to one month. This mixture is best used in the shower. Use small handfuls of the scrub and rub over the body in brisk circular motions.

Acupressure points, lymph nodes, ear lobes, the base of the neck, and the nostrils are all effective direct application areas for essential oils.

## Massage

Essential oils are a powerful addition to massage. Two absorption pathways are important during massage:

- Through the skin, entering the blood stream, and diffusing throughout the body; and
- Via the nasal mucosa. Once in the bloodstream, the eliminative organs excrete them. Physiological changes occur and these organs benefit in the process of excretion.

Blending selected essential oils with quality unrefined base oil can result in an enhanced therapeutic effect, more so than using base oil on its own. Adding essential oils to the therapeutic massage is an enhancing healing technique.

Mix with a suitable cold pressed oil olive, peanut, sunflower, sweet almond and massage into the skin.

## Rub

You can mix your selected oils with ethyl alcohol or cider vinegar and rub it on the body externally.

## THROUGH THE SKIN VIA WATER: BATHS

You can add essential oils to a foot, hand, or full body bath, where they are inhaled and absorbed through the skin.

Depending on the oil, use anywhere from one to ten drops for a full bath. Remember that the hot water will enhance dermal absorption, so always start with just a few drops, and add more if needed.

Add the oil after the bath has filled and move the water to disperse the oil before getting into the bath. Do not add the essential oil before or while you fill the bathtub with water, as the essential oil will evaporate before you get in.

## INHALING ESSENTIAL OILS

### Nasal Sprays

Oils used as nasal sprays will be absorbed into the bloodstream through the nasal mucous membranes. A micro-fine mister or aerosol can be used for inhalations, or essential oils can be added to vaporizers.

### Steam Inhalation

The steaming procedure is a little tedious, but effective. Add the essential oil to a bowl of boiling water and inhale the steam. In general, use approximately 6-drops of oil to a medium-size bowl of boiling water (adjust depending on the oil) and inhale for 5–10 minutes. This is very effective for coughs, colds, and sinusitis.

Caution: This form of administration is contraindicated for asthma because the steam can aggravate the condition.

### Aerosol Air Dispersion or Diffuser

An effective way to utilize oils is to disperse the constituents evenly into the air as a fine mist. Essential oils take this pathway in nature as the plant releases them into the air.

Since about 21-cups of blood can be regenerated in the lung tissues per minute, absorption of essential oils through the respiratory system is a very effective means of revitalizing, oxygenating, and detoxifying. Asthma and other respiratory disturbances will benefit particularly from aromatized air.

### Candles

You can use candles that have been made with pure essential oils, or use an unscented candle and add essential oils to it.

To add essential oils to an unscented candle (beeswax is a good choice):

- Light the candle and let it burn for a few minutes to melt some wax around the base of the wick
- Blow out the candle flame gently
- Drop 10-drops of your essential oil or blend in the melted wax around the base of the remaining wick
- Wait at least 15 minutes to allow the melted wax to harden before lighting the candle
- Be careful if using citrus or highly flammable oil such as eucalyptus as these can flare up using this method.



### Application to a Heat Source

You can place a few drops of oil on a heat source, such as a heater or radiator, in a diffuser, or on a ceramic or brass light bulb ring. The oils evaporate easily and disperse well throughout the room.

## PERFUMES

You can apply many essential oils or a blend of several to the pulse points as a perfume. Be aware that some oils cause skin sensitivity, such as cinnamon and citrus oil. These can cause a burning sensation if applied undiluted. Conduct a skin patch test before use and refer to the list of oils that can cause irritation and sensitization.

## HYDROSOLS

Hydrosols are the waters remaining from steam or water distillation once the essential oil components are passively separated out. As we see in the distillation section, the essential oil components will rise (usually) to float on top of the hydrosol. However, many compounds are fully or partially water soluble, and remain in solution in the hydrosol. For this reason, the hydrosol can be beneficial.

Because many pesticides are water soluble, it is essential for the botanical to be organic.

Hydrosols are also known as hydrolats and floral water.

## ENVIRONMENTAL SPRAYS, ROOM SPRAYS, AND FLORAL WATERS

To make an environmental or room spray (also called a floral water), add 3-drops of essential oil to 4-oz of distilled water. Shake well before spraying. Alcohol can be used as a solvent for the essential oil and we will look at this later in the program. If the mixture is kept in a dark, airtight bottle, it will keep fresh for approximately a month. These are great in an atomizer for use on the body or as an air freshener.

## COMPRESSES

Compresses are a very effective way to use essential oils. Cold compresses are used for sprains, localized swelling, blisters, insect bites, stings, bruises, and headaches; hot compresses are used for abscesses, boils, cystitis, and dysmenorrhea.

- Use 6-drops of essential oil to 9-oz of water.
- Use ice water for cold compresses and boiling water for hot ones.
- Pour the water into a bowl, and then add the oil. Saturate a clean piece of unbleached muslin (or similar cloth, such as clean cotton) in the mixture, wring out, and apply.

The following charts provide examples of oils that we study that can be used for compresses.

<b>Condition</b>	<b>Cold compress with:</b>
Sprains	Peppermint, chamomile, eucalyptus, ginger, lavender, pine, rose, and rosemary
Localized Swelling	Ginger, rose, and rosemary
Blisters	Eucalyptus, tea tree Australia, and manuka
Insect Bites & Stings	Lavender, manuka, tea tree Australia, peppermint, rose, and ylang ylang
Bruises	Eucalyptus, geranium, ginger, lavender, and peppermint
Headaches	Chamomile, eucalyptus, ginger, lavender, neroli, peppermint, rose, rosemary, and ylang ylang

<b>Condition</b>	<b>Hot compress with:</b>
Abscesses & Boils	Bergamot, eucalyptus, rose, manuka, and tea tree Australia
Cystitis	Bergamot, chamomile, eucalyptus, geranium, clary sage, sandalwood, manuka, and tea tree Australia
Menstrual Pain	Chamomile, clary sage, lavender, peppermint, rose, and rosemary

## AN AROMATIC BATH EXPERIENCE

Adding essential oils to base oils is one method of preparing bath and massage oil blends. Essential oils can also be added directly to the bath water.

The quantities given below are for direct addition to the bath. If you blend with base oil, use approximately (depending on the essential oil) 60-drops to 3¼-oz of oil.



If lack of time is a factor in your life, then the direct application into the bath water is an easy, quick alternative.

- Run the bath water first;
- While the bath water is running, prepare everything you need for your bath so that you will be comfortable. Think about music, towels, a head pillow or folded towel, a glass of water or herbal tea, candles, and a do not disturb sign for your bathroom door;
- Add the essential oils only once the bath is full and the water is turned off, just before you are ready to step into the bath;
- Swirl the oils around in the bath with your hands to ensure dispersion; and then
- Enter the bath and soak for around 10 minutes.
- If a full bath is not possible, a hand or footbath can be excellent.

Do not be tempted to add more than the stated amounts. Essential oils should never burn or irritate the skin. The heat and water of the bath can enhance absorption, so always err on the side of caution and use less than you think you need to, then add more drop by drop.

You may experience slight tingling with essential oils that contain menthol, such as peppermint, but this disappears quickly once you step out and dry off. Citrus oils in particular can intensify their action on the skin when mixed with the heat of the bath water. Again, remember to use only the stated amount in the formula.

### **Stimulating Morning Bath**

Rosemary *Rosmarinus officinalis* oil: 5-drops

Peppermint *Mentha piperita* oil: 2-drops

### **Nervous Exhaustion Bath**

Geranium *Pelargonium graveolens* oil: 4-drops

Basil *Ocimum basilicum* oil: 2-drops



## USING ESSENTIAL OILS IN THE HOME

You can incorporate essential oils into your everyday life by using them whenever you would use a commercial cleanser or air freshener. You may wish to avoid using your precious essential oils, such as neroli and rose attar, for cleaning and household purposes.

You do not need to invest in diffusers or other aromatherapy equipment, although they can be quick and easy ways to disperse essential oils into the air.

The following suggestions do not require an investment in any equipment:

- Use two or three drops on the filter pad of your vacuum cleaner to leave a refreshing aroma around your home as you do the housework;
- Add two or three drops to the edge of the toilet roll before placing on the toilet roll holder;
- Place a few drops on cotton balls that are distributed in drawers, wardrobes, closets, and cupboards. A good night's rest is ensured if placed into pillowcases. This will also help keep moths and insects out of linen;
- Use as a room freshener. Pour directly on cotton balls and leave in a room. This is particularly good for freshening up a room that is stale with cigarette smoke or pet odors;
- Sprinkle a few drops on potpourri to revive the original fragrance;
- Sprinkle a few drops in and around drains, into the trash bin, compost bucket, toilet bowl, and in the dishwasher;
- Add a few drops to the washing machine or dryer when doing laundry. For dryers, add the oil to a dry cloth and place it into the dryer along with the wet laundry; and
- Add a drop of lavender to the water that you add to your steam iron or use a hydrosol.
- You can use essential oils in every room in your house: kitchen, living room, bathroom, bedroom, laundry, and even in the garden.

## EXERCISE

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Your diet may consist of only the freshest, organic vegetables, fruits and grains, but without exercise, wellness will still evade you.

The benefits of exercise are well documented and cannot be underestimated. The body, if not used, will eventually stiffen and age. Rather than exercise wearing out the body, it revitalizes and rejuvenates it.

Exercise means movement; movement is energy; energy is life.

A simple enough statement, but a regular exercise program can be one of the hardest things to implement in your health program.

Studies illustrate the ability of exercise to reverse physical illness. Osteoporosis is slowed down by a weight-bearing exercise regime carried out three times a week. Exercise has also been shown to reduce the severity of heart disease, glaucoma, hypertension, and Parkinson's disease.

Exercise has been shown to work in two ways. Strength training results in the body adding bulk to muscles to cope with the stress of lifting weights. Larger, better-trained muscles process oxygen more efficiently, and the heart does not need to pump as hard to keep the muscles supplied. This is why weight lifting helps cardiovascular disease. Cardiovascular training, such as aerobics and running, strengthens the heart and enables it to pump more efficiently, so that fewer beats per minute are required.

A study of more than 25,000 Norwegian women found that breast cancer rates in women who exercised at least four hours a week were 37% lower than in sedentary women. The more women exercised, the lower their risk of breast cancer. The researchers believe that exercise reduces the amount of estrogen produced by the ovaries, and reduced exposure to estrogen reduces the risk of breast cancer. This link has been suggested to explain the statistic that women who begin menstruating later

and enter menopause earlier are at less risk of breast cancer. High dietary fat intake and a high body-fat index are other factors in increased risk of breast cancer.

Choose an exercise you enjoy. It can be a long walk in the park, swimming, dancing, yoga, jazzercise, step class, spinning, skipping, running, biking, or tai chi, as long as you do it regularly. This means at least 30 minutes, three times a week, on a regular basis.

You may find it useful to wear a heart monitor to ensure you are working in your peak training zone. Each individual's peak training zone varies, but your basic zones can be established by subtracting your age from 220—the resulting number is your maximum training heart rate. Your peak training zone for building fitness and burning fat is 65-80% of that figure. It is easy to work above that level (remember those unfit joggers you see who are red in the face and looking most unwell). This puts excessive strain on your system and becomes anaerobic, so that the oxygen in the blood is being used up, not being enhanced, as with aerobic activity.

Many people find that working out with a personal trainer for a few sessions can get them on track with an effective and safe exercise regime. Your local gym can recommend personal trainers.

Remember: Work at your own pace and more is not necessarily better. Studies have shown significant health benefits from a 30-minute walk three times a week, so do not feel that you have to join the nearest health club or buy a lot of expensive exercise equipment.

Think of all the benefits you are bestowing on your body as you sweat your way through the last 15 minutes: Your muscles are toned; your lymphatic system is stimulated to carry away toxins and wastes from the blood; your heart is strengthened and with a slower pulse (the result of regular exercise), the heart's work load is reduced. Not only that, but your weight will reduce, enzymes vital for the chemical interactions in the body are stimulated, and your sweat is relieving the body of stored toxins and waste materials.

So, what are you waiting for? Put on those walking shoes and take a brisk walk around the neighborhood. Not only will you be enjoying fresh air and exercise; you will be amazed at the things you see when you are not inside a car.



*Figure 5: A good exercise regime can include any activity you enjoy!*

## SPIRITUALITY AND RELIGION

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Wellness starts with acknowledgment of our body—without doubt, the most complex machine on earth, but much more than that. Our body is the repository for our self, and as such, deserves our thanks.

Spirituality and religion are topics often left out of health books, but these topics are gaining in popularity as the medical profession witnesses the effects that they can have.

Whatever your personal choices, try not to ignore this side of yourself. There are many choices for exploring spirituality and religion: Explore one or many.

While Oprah may have more recently coined the phrase, “count your blessings therapy” is a concept that has existed for centuries, and one that is of great use to us today. Take time right now to:

- Thank your eyes for giving you the gift of sight.
- Thank your body for allowing you to sit still long enough to read this passage.
- Thank yourself for embarking on this journey of wellness.

## RELAXATION

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For some people exercise is relaxation. It is difficult to worry and fret about the mistakes and decisions of the day when you are coordinating arms and legs in a dance movement or running that extra mile up a hill. What's more, relaxation is doing something you enjoy, absorbing yourself in the moment, and nothing else.

Emotional and mental relaxation is as fundamental to your health program as the food you put into your mouth. Do not neglect this aspect of your health regime, regardless of how busy you are.

Dr. Thomas Hanna says: "The moment we become more self-aware and begin to realize the way we react to daily stress, improvement can begin. The first step is knowing that thinking is a physical act."

Visualization and mental attitude are powerful forces within each one of us. We live in a highly stressful society—just to listen to the news or read the newspaper can be a stressful experience. It is important to "let go" of all these stresses and worries. Each negative thought or worry accumulates in the body and eventually causes aches and pains, dysfunction, and premature aging.

There are many techniques for alleviating stress from your life. The trouble is when we get really stressed, we tend to become caught in a vicious cycle. People are now simplifying and streamlining to avoid the high stress that many suffer from daily. There are many measures of success. Being happy and healthy may be just as successful as having a new car and a holiday house, both of which you are too busy working to enjoy.

Try these techniques:

- Have potted plants and fresh flowers in your office and home.
- Diffuse your favorite essential oils in your office and home.
- Soak in a fragrant bath, scented with lavender or rose essential oils. Play some relaxing music, light an aromatherapy candle, read a book, and relax.

Remember not to have the water too hot, and add the essential oils just before you get in, as they evaporate quickly.

- Try yoga classes. Experience different types of yoga and yoga teachers until you find a class that suits you. This is an excellent way to alleviate stress and tone your body at the same time.
- Remember to enjoy life. Do something fun: Walk in the park, watch a comedy, or savor a great meal.
- Every night before you go to sleep, write down five things you have to be grateful for in your life that day.

## SLEEP

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### **Getting a Full Night's Sleep May Be More Important than Intelligence in Learning!**

Studies conducted by Harvard Medical School and the Lab of Neurophysiology at the Massachusetts Health Center, show that skills and new factual information may not get properly encoded into the brain's memory circuits without adequate sleep. They suggest that there are two stages during sleep (one at the beginning of sleep and one at the end) when the brain undergoes physical and chemical changes, and these interactions may be what strengthens memory traces. Those who do not get a full-night's sleep might be shortchanging themselves of that critical time at the end of the sleeping pattern that allows them to fully process what they've learned. It is essential to go through the deep sleep phase in the first hours of sleep AND the rapid-eye movement stage during the end of full night's sleep, when vivid dreaming occurs. It is also essential that we get a full night of sleep on a nightly basis!





*Figure 6: Lavender (*Lavandula angustifolia*) essential oil has been shown to assist with insomnia and stress. Don't confuse it with Lavandin (*Lavandula intermedia*), which has high levels of camphor and can be stimulating!*

## MAINTAINING A HEALTHY WEIGHT

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There simply is no magic pill for weight loss. The best magic for weight management is weight maintenance. That can be a hard sell over the winter. On those cold frosty Oregon days, it is hard to convince oneself that we would rather have a carrot than a piece of organic chocolate cake.

However, as with all things in life, moderation is the key. Here are seven tips for moderation to kick-start your spring goals.

## Do some type of exercise every day... preferably every morning

Morning people can skip this next bit. However, if you are not a morning person, there is a psychological trick to early morning exercise: Do not think. Normally, we advocate thinking as a good thing, but when it comes to morning exercise, your brain is not your friend. It is very easy to lie in bed having an internal dialog: "*It's too cold. I could get sick*"; "*I'll do it tonight after work*"; or "*If I go for a walk now, then I'll be late for work.*" Don't think about it. Just pull yourself out of bed the second the alarm goes off. That's right—don't snuggle. Snuggling is not helpful. Just autopilot to the clothes that you left out the night before (good trick, too), open the door, and start walking. By the time your brain catches up, you will already have done 10 minutes.

Another tip: If you don't want to go at all, just say to yourself that you will go for five minutes. After five minutes, you will feel so virtuous, that you are more than likely to keep going.

The effect? Elevated metabolism, increased energy, appetite control, and a big plus in your feel good column for the day. You are more likely to make healthy food choices when you start your day off with some exercise.

Walking outside can be fun no matter the weather, particularly since most of us spend way too much time in front of a computer, but a yoga video is also great way to start the day.

## Have lots of healthy foods available

It is much easier to make a healthy food choice when there are some healthy choices available! Make a big fruit salad to keep in the fridge for when you need a snack. Have some of your favorite veggies ready to eat when you are hungry. Make an extra-large salad at night and eat the leftovers for lunch the next day. Just leave the salad dressing on the side, otherwise your salad gets soggy.

## Weight train two-three days a week

It will keep your metabolism elevated and your muscles toned. Try to get in some weight training at least three times a week. Remember, you don't have to go to a gym

to weight train: Cans are weights too! *Shape* magazine offers great at-home workouts just about every month. Yoga is also good for strength training.

### **Limit Alcohol**

Alcohol has a lot of empty calories, depresses your metabolism, and stimulates your appetite.

### **Make Exercise Fun**

Take walks with friends and family. Invite them to your gym to workout and visit with you. Many gyms offer free passes for friends and family, anywhere from a single use to a week pass. Take advantage! Wrap up warm and go for a bike ride. Be active.

### **Eat Breakfast**

When you don't eat breakfast, you go from dinner the night before until lunch the next day without food! That's about 12-14 hours without food. Your body may interpret such a long stretch without food as starvation, and it may slow your metabolism as a safety mechanism.

### **Avoid TV**

What is it about commercial breaks that trigger the munchies? Tape your favorite shows, then you can fast-forward the breaks. It works! Who knew that Tivo is a weight management tool!

### **Indulge your mind, senses, and body with something other than food**

Many of us love to cook, love eating out, love gourmet food stores. Break out of the food focus by pampering yourself in other ways. Take long aromatherapy baths with lots of bubbles. Get a hot rock massage. Curl up in front of a fire and read a book. Play with your cat or dog. Live life through things other than food!

## Alternative weight loss treatments: research lacking

It is estimated that more than 50% of U.S. adults are overweight or obese. Along with the rising popularity of complementary and alternative medicine, there has been increased interest in alternative weight-loss products and approaches.

However, the authors of a recent review of alternative methods for weight loss published in *Critical Reviews in Food Science and Nutrition*<sup>29</sup> conclude that no alternative treatments for weight loss have been convincingly demonstrated to be safe and effective.

In an effort to gather scientific evidence on alternative weight-loss treatments, David B. Allison of Columbia University College of Physicians and Surgeons and colleagues reviewed data on the safety and efficacy of 18 therapies. Alternative treatments were defined as non-pharmaceutical agents that did not involve surgery or cognitive-behavioral techniques.

Allison and his team determined that none of the treatments (except an ephedra-caffeine combination) had adequate evidence supporting efficacy and that the studies were not optimally designed or analyzed. For instance, some researchers failed to use control groups, track compliance, or analyze safety.

A few of the treatments showed promise for reducing weight and obesity, according to the researchers. In several small studies, pyruvate, dehydroepiandrosterone (DHEA), and beta-hydroxy-beta-methylbutyrate (HMB), along with resistance training, improved body composition. In addition, chitosan and conjugated linoleic acid (CLA) have plausible mechanisms of action that require further study.

Regarding safety, the researchers noted adverse events occurring in people taking DHEA, Germander (*Teucrium chamaedrys*), and ephedra (*ma huang*), and in those undergoing hypnosis therapy. They also warned that dietary supplements are not strongly regulated by the U.S. Food and Drug Administration and that there is no

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<sup>29</sup> Allison DB, Fontaine KR, Heshka S, Mentore JL, Heymsfield SB. 2001. Alternative treatments for weight loss: a critical review. *Crit Rev Food Sci Nutr*. 41(1):1-28.

systematic monitoring of adverse reactions associated with the use of alternative therapies. After a number of adverse events, the FDA has now banned ephedra.

Allison et al recommend further investigation into the more promising therapies. In the meantime, they suggest that there are few alternative treatments for obesity that can be recommended with confidence.

## WHEATGRASS THERAPY



Wheatgrass is grown from ordinary, preferably organic, wheat. The tender blades of grass that spring from the wheat are the part that is used.

Wheatgrass juice therapy was made popular by the late Dr. Ann Wigmore, a remarkable woman, full of vitality. In her book *Why Suffer*, she quotes the soil scientist Dr. G. Thomas:

*“Wheatgrass grown in good soil up to about six inches in height absorbs well-balanced nourishment from the sunlight, air and earth and its live minerals.*

*Live vitamins and live trace elements have a total acid content that comes very close to the pH 7.5, which symbolizes healthy human blood. This indicates an extraordinary connection between the green blood of wheatgrass and the red blood of the healthy human bloodstream and shows that the distribution of nutrients—in amounts—comes very close to being identical.”*

Wheatgrass is known to be the most concentrated form of vitamin B15 and is a powerful detoxifying and rejuvenating substance.

### **How To Grow Wheatgrass**

- Soak 2-cups of wheat overnight.
- Fill any suitable container, like a seed tray, with organic, fine soil, and pat down firmly with a flat board.
- Sprinkle soaked wheat on the soil and cover with a sprinkling of fine soil.
- Water, then cover with several layers of damp paper.
- Leave it, keeping it damp, until it begins to shoot.
- Remove the paper and put it in a warm spot with indirect sunlight.
- Water once or twice a day.

The grass is ready for cutting when it is 4-7-in/10-16-cm high.



### To Extract the Juice

There are special wheatgrass juicers available, but an old-fashioned meat mincer or grain grinder works just as well.

Cut the grass at soil level with a pair of scissors. Cut only the amount you intend to juice.

Feed the grass **cut-end first** into the mincer. If you feed the top end in first you will end up with the grass wound tightly around the grinding blades.

You will be left with juice and a pulpy mass. The pulpy mass can then be squeezed through muslin and mixed with water to extract more juice.

Electric juicers and blenders are not as effective for extracting the juice; Ann Wigmore does not recommend their use, as they oxidize the juice and lose valuable nutrients.

The juice is best used fresh as it begins to lose its vital qualities on contact with the air, so it is best to make up small quantities as you need them.

The straight juice can be diluted with water or vegetable juice or flavored with kelp.

## Uses

Wheatgrass juice is a powerful regenerating tonic and will help to cleanse and heal the body. It has been used successfully to treat cancers and other degenerative conditions in the body.

Applied externally, it is useful for burns, scars, cuts, bruises, sunburn, and sores. It can be applied directly, or a cloth soaked in the juice can be applied to the area and bandaged in place. Wheatgrass blades are said to detoxify water that is contaminated with chlorine and fluoride. Place a few blades of grass in the water and leave to stand overnight. The chlorophyll content in the grass may absorb and neutralize the chemicals.

When all the grass is cut in the tray, the soil and wheat can be composted. It is possible to cut a second growth from the grass, but it is never as potent as the first.



## ENVIRONMENTAL WELLNESS

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It is important to realize that our wellness relies on the wellness of our environment. Become aware of your environment and the powerful effect that each of us can have, simply by doing any or all of the following:

- Recycle.
- Compost.
- Support neighborhood beautification programs.
- Plant some herbs in your yard.
- Garden using organic methods and encourage your neighbors to do the same.

### **Save money, energy, and help reduce global warming**

- Recycle paper and cardboard products (which make up around 40% of all solid waste!) at home, school, and work. It is easy and is the largest single product by both weight and volume that could be reduced, recycled, and reused. Set up a bin at home today and see if you can get one set up at work. Start a competition for yourself, your kids, or your partner to reduce your non-recyclable waste. One bag equals a treat of your choice! Getting the whole family involved cuts down on one person's work. It helps to get a copy of your local recycling guidelines and tape them to the wall or a notice board in your laundry or garage. Ensure you have enough containers for each category. A plastic bucket works well. Another bonus—your local waste company may offer a cheaper rate for a smaller trash can size, and with all your recycling, you may be able to downsize and save!
- Use cold water in the washer whenever possible. Use a few drops of eucalyptus essential oil to kill dust mites and leave your laundry smelling wonderful. Your clothes will be just as clean and you will save money on your heating bill. Put the essential oil on a cloth that you put in with each load, or wait until the washer has filled before adding to avoid the chance of marking clothes or the washer.
- Wash only full loads of dishes in the dishwasher.
- Turn off the lights and TV when leaving the room. It is the easiest thing you can do to keep your power bill down.

- Turn off your car's engine if it will be idling for more than one minute. It takes less gas to restart it than to let it idle. Better yet, try a car-free day! Increasing numbers of people are moving so that they are closer to their work.

## CLUTTER CLEARING—FOR HEALTH AND MIND!

Natural health and wellness encompasses a good diet, plenty of clean water, regular exercise, fresh air, herbs, essential oils, and other supplements to keep us in great shape or help us deal with life's challenges. However, our health can be effected by less obvious factors. Rooms filled with clutter that you keep meaning to clear out, but never do, can significantly drain your energy.

A favorite read is *Clear Your Clutter with Feng Shui*, by Karen Kingston. It is an inspirational read, does not make you feel guilty, is easy to read, and full of great ideas for de-cluttering.

Below are some quick ideas to help you.

### Have a Clearing Clutter Party

This is a great way to help your friends and family de-clutter! Schedule a day. Invite family and friends to bring at least three things they don't need or want. Call a charity organization in your area that does home pick up, and schedule a pick up for the next day (so that the clutter is not left at your house). Help you and your family and friends get organized, and help those people that are less fortunate. Or, have a yard sale!

### Do It With a Friend

If you'd rather do it on your own or with one friend: Use three boxes—one for things to throw out (those items that are worn out or broken), one for things to give away, sell or recycle, and one for the things to keep. Be systematic. Go room by room, and work your way completely through the room before you begin the next. Once you have completed the room, move the throw out/sell boxes out to the yard or garage. Use items in the keep box to redecorate the room. Assess any left again. Perhaps you do not need them after all!

It can be tough to get rid of things we have so carefully acquired. Another tip is to put things you are not sure about into a box or corner of the garage. Invite over your

good friends and family and tell them to take whatever they can use. Whatever is left goes in my next yard sale. Giving your loved items to those you love makes the parting that much easier!

### **Use the Library**

Quit the book clubs! Take that online bookstore off your bookmarks! No, we are not suggesting that you give up reading, but get a library card instead! How many novels do you read enough times to justify keeping a copy on hand? If you love it, you can check it out from the library again next year. Many libraries also have videos and DVDs available. When you de-clutter, donate any unwanted books to the library, then you can check them out again if you need them.

### **Cat-owners: Protect Your Environment and Your Cats**

Approximately 4 billion pounds of cat litter are thrown into landfills every year. It is essential that cat-owners turn from clay-litters to biodegradable litters, which are also available in clumping and non-clumping form.

Clay-litters contain silica, considered toxic by the Environmental Protection Agency (EPA) and carcinogenic by the California EPA. They are also dirty, track on your floors, and can get into your lungs and your cat's lungs, potentially causing all sorts of respiratory problems. Clay litters also have many chemical additives, which may cause respiratory problems and lead to urinary tract infections or other illnesses (even death), to cover up odors or produce clumping upon urination.

Unlike clay-based litters, biodegradable litters break down quickly if they are sent to landfills, or they can be composted once they are thoroughly scooped and used as mulch. Also, most biodegradable litters can be flushed down toilets and are safe for your cats to ingest if they lick the litter off their paws. Natural, biodegradable litters are made from recycled natural plant materials and other ingredients, or from by-products of other industry-related plant processes. Currently, there are litters on the market made from recycled newspaper, pine sawdust, and wheat byproducts.

## **GARDENING FOR KIDS**

There is nothing more rewarding than a once-bare patch of dirt brimming with zucchini and tomatoes, basil and dill, or flowers. That patch of dirt can be as small as a window box or pot, or a patch by your back door.

Kids love to garden—give them their own plot to tend and award prizes to the biggest tomatoes or pumpkins. There is nothing more fascinating to a child than an edible plant coming out of packet of seeds.

Not only is gardening good fun, it teaches:

- Observation: watching the changes and growth.
- Responsibility: watering and weeding.
- Patience: waiting for the fruit or vegetable or flower to mature.

Show children how to compost and start them on the road to good habits as adults. Gardening can also be a good intermediate step before getting a pet.

Some easy projects for kids to start with:

- Pluck dead blooms from flower beds or containers.
- Make leaf rubbings using thin paper and a peeled crayon or soft pencil to do various leaf and bark.
- Grow broccoli sprouts for your family dinner, using 1-T of broccoli seeds and a jar covered with some nylon, secured by a rubber band. Each day allow the seeds to soak in warm water for three minutes, then drain.
- Put vegetable tops in glasses of water and gravel and watch them sprout! Try onion, radish, sweet potato, beet, parsnip, or turnip. Have older children note the progress in a book or draw what they see.

Gardening projects can include the whole family: Adopt a tree to sit under for reading or picnics, plant an herb garden in a window-box container, or set up a compost heap.

You can get great (and economical) plants online these days. Online plant shopping can be convenient, easy, and fun! ACHS graduate Michelle DeFord offers a wide range of herbs at Crimson Sage Nursery in Oregon and sells online at:

<http://www.medicinalherbplants.com>.

Another favorite is Lingles Organic Herbs, who offer a wide range of herbs for culinary and medicinal uses: <http://www.linglesherbs.com>. They ship live plants right to your door. They also offer a great online newsletter with wonderful herbal recipes.

If you are in or around Portland, Oregon, we invite you to visit the College's Botanical Teaching Garden.

## COMPOST

Generations of gardeners sum up successful gardening in one word: Compost. Compost returns nutrients to the soil and recycles waste that is harmful to landfill, turning it into brown gold.

Making compost is easy, and the rewards are well worth the small effort.

### How does compost work?

Millions of bacteria, fungi, and actinomycetes do the work of breaking down the organic matter into compost. All these little organisms need to do their work is food, air, and water. Given these three requirements, the microorganisms need nitrogen to use the carbon as food. For perfect balance, try to achieve around 10 parts of carbon-rich material (straw and leaves, for example) to 1-part nitrogen-rich materials (manure, fishmeal, grass clippings, weeds, and kitchen waste). Don't use chemically treated or fertilized plants or clippings in your compost heap.

## Temperature

This determines how fast you can make compost. For fast compost, you want temperatures to reach 120 to 160 degrees.

## What to Use

Your compost heap can be as simple as a pile in a corner of the yard, or as complicated as one of the black plastic, or rotating models available today on the market. Many local recycling centers bring in compost bins in spring at a low cost, so keep an eye on flyers for those. A cubic yard (3ft x 3ft x 3 ft) is a good size.

## Recipe for Compost

- Chop or shred coarse materials, such as branches.
- Build the heap like a layer cake: Alternate green and brown materials. Have a pile of brown materials to throw on top of kitchen wastes to avoid smell.
- Hose down the layers with water if it is dry in your area.
- Turn every three to four days for fastest compost.
- In an apartment, you can get a worm composter. The worms live in a bin filled with paper bedding and you place your kitchen scraps into this. There should not be any mess or odor.

## Using Compost

- Spread compost after preparing the soil for planting in spring.
- Mulch vegetables, herbs, and flowers after planting for slow-release feeding.
- Mulch perennials in the fall to protect during winter.
- Use compost to grow seedlings and potted plants.

## Troubleshooting

- Pile doesn't get hot enough? Add more green stuff.
- Needs more oxygen? Turn it more often.
- Dogs or other animals attracted to heap? Add more brown stuff and cover household wastes. Don't add meat or bones to your heap.

## Using Herbs in Your Compost

Herbs are a wonderful addition to the compost heap, because they help to speed up the breaking-down process and adding extra minerals and nutrients to the finished compost.

Bio-dynamic gardening based on the concept that all things influence each other in a garden, specifies six herbs as suitable for the compost heap: Stinging nettle, dandelion, oak tree bark, yarrow, chamomile, and valerian.

Add comfrey and any herbs that have been trimmed back at the end of the growing season to the heap, along with all the kitchen scraps, vacuum cleaner contents, and any organic material from the house and garden that will break down.

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