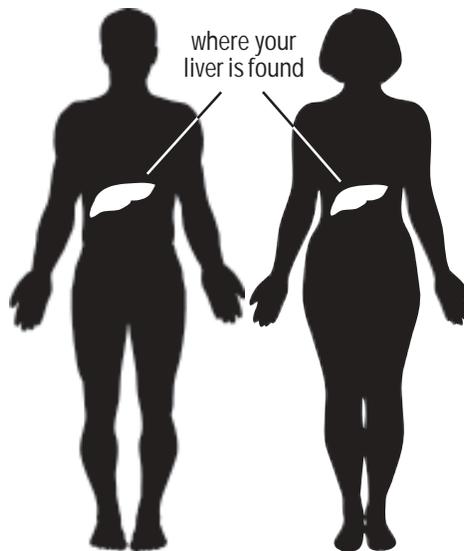


TOWARDS A HEALTHY LIVER



different ways to help promote the health of your liver

Your liver, the largest organ in the body, is located behind the lower ribs on the right side of your abdomen and is roughly the size of a football. The liver provides your body with critical functions like filtering blood, eliminating toxins and producing factors that help blood clot. It processes many drugs into forms that are easier for the body to use. It also converts sugar into triglycerides (lipids/fats) and glycogen (a form of glucose/sugar stored by the liver) that helps regulate the body's needs.



The work of the liver is critical to the brain and central nervous system. These tissues receive their energy supply only from sugar, so they are vulnerable when the liver is damaged and unable to supply and regulate chemicals in the body.

Many people with liver disease, or people who take medications that affect liver function, seek information on nutritional and complementary ways to promote liver health. Some commonly used over-the-counter pain relievers can be hard on the liver if used too frequently. There are also a number of prescription drugs, including those to treat HIV disease, that can stress the liver. There are nutritional or dietary changes that people can make which may go a long way in helping the liver.

A number of available, although unproven, supplements may help promote liver health. As you may explore using

these supplements, it's important to keep in mind that their use *has not been proven* beneficial. This doesn't mean that they're not useful, but rather the research hasn't been done to determine whether or not they're beneficial.

Deciding whether or not to use supplements and herbs to promote liver health unfortunately must be done without conclusive study data to inform wise decision-making. A few supplements, believed by some nutritionists and many supplement promoters to improve liver health, are found later in this paper. Moreover, a list of herbs—compiled by the *HCV Advocate*—that are known or believed to be toxic to the liver are provided. Included is also a list of herbs that may be safe for the liver, though their health benefits remain unproven.

A PUBLICATION FROM

PROJECT
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Information,
Inspiration and
Advocacy for People
Living With HIV/AIDS

JANUARY 2003

Your liver helps you by:

- Producing quick energy when it's needed;
- Making new proteins;
- Storing certain vitamins, minerals (including iron) and sugars to prevent shortages of body fuel;
- Regulating transport of fat stores;
- Controlling blood-clotting;
- Aiding digestion by producing bile (to help your system break down food);
- Controlling the production and elimination of cholesterol;
- Neutralizing and destroying poisonous substances;
- Processing alcohol;
- Cleansing the blood and getting rid of waste products;
- Maintaining hormone balance; and,
- Helping the body resist infection.

Nutrition

There are many things you can do to help your liver and keep it healthy! The first is to reduce its work load. Simple changes in your diet can go a long way to helping. Since the liver converts and detoxifies



everything we eat and drink, a well-balanced nutritious diet is a good start. The following are some dietary suggestions that may help:

- Flush your system by drinking eight glasses of water a day.
- Consider a low-fat, low sodium and high fiber diet. Avoid over-eating high fat foods like fried foods, french fries and most fast food items. Poor quality processed foods like canned or frozen foods and processed meats and cheeses sometimes contain little fiber or few nutrients. They are often high in salt and should be avoided. But there are no hard and fast rules here. High quality, well-preserved foods and frozen goods can also be very high in nutritional value if proper care is taken.
- Familiarize yourself with the ingredients and contents of the foods you buy. If possible, eat the highest quality fruit and vegetables you can find, and even these—whether organic or commercial—should be carefully washed before using.
- Be careful with any food if you don't know its source. For example, some innocent looking wild mushrooms can destroy a person's liver in a matter of days.
- Maintaining adequate protein intake and body weight is essential. If your liver is damaged, reduce salt in your diet. Meats tend to be high in salt. Try to eat vegetables that are high in protein. Animal source proteins include meat, fish, eggs, poultry and dairy products. Lean meat is best. Trim fat off red meat and remove the skin from poultry.
- Do not eat raw or scavenger fish (catfish, etc.). They may contain chemicals and bacteria that are harmful to the liver. People with liver problems should be especially cautious about eating shellfish of any kind, as they can be a source of hepatitis A. Someone with an already damaged or stressed liver doesn't need to fight an additional battle.
- Since the liver maintains glucose levels, essential to brain and nervous system function, small frequent meals are recommended. This helps the liver work less.



For more information on keeping your food safe at home, ask for Taking Control of Home Food Safety and Take Charge of Your Food, available from Project Inform at 1-800-822-7422 or www.projectinform.org.

A few cautions to consider

Excess iron can damage the liver. If your liver is compromised, some nutritionists believe you should decrease or avoid eating red meats, liver and iron-fortified cereals. Avoid cooking with iron coated cookware and utensils. The average diet supplies enough iron to meet the body's needs.

Some **over-the-counter medications** should be avoided, as should excessive levels of some vitamins. If your liver is seriously compromised, Tylenol and other drugs containing *acetaminophen* should be avoided. Also, if your liver is seriously compromised avoid anti-inflammatory non-steroidal drugs, like Advil and Ibuprofen.

Care should be taken to **avoid too much vitamin A**, as high levels can be toxic to the liver. In general, these types of drugs should be taken for a maximum of five consecutive days. Taking them longer can cause stress and possibly harm the liver. Likewise,

aspirin should be taken with care because it can lower platelet counts. People with liver disease often experience swelling of the spleen, which frequently destroys platelets faster than the body can make them. Aspirin will add to this problem.

All benzodiazepines can be harmful to the liver and thus should be used with careful monitoring of liver function. These include diazepam (Valium), temazepam (Restoril) and others. Many prescription drugs, including those to treat HIV disease, can stress the liver. Ritonavir, when used at full dose, presents probably the greatest challenge to the liver. But any drug that is metabolized through the liver can create problems. For a list of side effects associated with commonly used therapies to treat and manage HIV disease, call Project Inform's hotline and ask for *Dealing with Drug Side Effects*.

Alcohol is among the most severe-

ly toxic agents processed by the liver. The American Liver Foundation suggests no more than one drink a day. Total avoidance is recommended for people with liver disease. Many liquid cold and flu medicines contain alcohol and should be used with caution. As a rule, regardless of the type of medication, read the labels and check the ingredients. Speak to your doctor and/or pharmacist about potential problems.

Avoid street drugs. Street drugs often are impure and contain harmful chemicals. They may also have bacteria in them that can make you sick and harm the liver.

Avoid smoking and fumes. Everything we breathe has to be filtered by the liver. It is believed that smoking cigarettes increases the chance of developing liver cancer. Fumes from paint thinners, bug and aerosol sprays, etc., can damage your liver and should be avoided.

Supplements

Many supplements are thought to help the liver. Perhaps the most researched of these is an herb called *milk thistle* (its active ingredient is known as silymarin). A review of the literature suggests that milk thistle is not harmful, but studies have not yet proved that it is beneficial. Also, milk thistle affects the p450 enzyme, the same enzyme used by protease inhibitors and NNRTIs. This means milk thistle could possibly affect the blood levels of these anti-HIV drugs. A large study is currently enrolling through the Veteran's Administration to assess its effectiveness for people with liver disease.

Some supplements *may* help promote liver health, though research proving their value has not been conducted. These include vitamin C with bioflavonoids, vitamin E, coenzyme Q-10 and N-Acetyl-Cysteine (NAC). NAC is

commonly used to counteract the liver-damaging effects of acetaminophen (Tylenol) overdose. Studies have used doses of 500mg NAC twice daily.

Some caution should be taken with these supplements. Since most have not been studied in combination with anti-HIV drugs, it's not known whether they will affect the drug levels of anti-HIV therapies. Many supplements are broken down by the same enzymes used by anti-HIV drugs and as a result there's a potential interaction.



some information on herbs

(Excerpted from the *HCV Advocate*.)



Herbs that may be useful and are also considered safe:

Artichoke (*Cynara scolymus*)
California Poppy (*Escholtzia californica*)
Chamomile (*Matricaria chamomilla*)
Dandelion (*Taraxacum officinale*)
Licorice (*Glycyrrhiza glabra*), not recommended for long-term use
Maitake (*Grifloa frondosa*)
Peppermint (*Mentha piperata*)
Rosemary (*Rosemarinus officinalis*)
Soybean (*Glycine soja*)

Herbs with known liver toxicity:

Alpine Cranberry (*Vaccinium vitis-idaea*)
Cayenne
Kinnik-kinnik or Bear berry (*Arctostaphylos uva-ursi*)
Mercury Herb (*Mercurialis annua*)
Schissandra chinensis
Sweet Clover (*Melilotus officianalis*)
Tonka Beans (*Dipteryx odorata*)
Trailing Arbutus (*Epigae repens*)
Witch Hazel (*Hamamelis virginiana*)
Woodruff (*Galium odorata*)

Herbs to avoid—possible liver toxicity:

Alkanna (*Alkanna tinctoria*)
Chaparral (*Larrea tridentata*)
Comfrey (*Symphytum officinale* and *S. uplandicum*)
Dusty Miller (*Senecio cineraria*)
Forget-me-Not (*Myosotis cineraria*)
Groundsel (*Senecio vulgaris*)
Borage (*Borago officianalis*)
Colts Foot (*Tussilago farfara*)
Dong Quai (*Angelica polymorpha*)
Ephedra also known as Ma Huang or Mormon Tea (*Ephedra sinica*)
Germander (*Teucrium chamaedrys*)
Hemp Agrimony (*Eupatorium cannabinum*)
Hops (*Humulus lupulus*)
Jin Bu Huan (*Lycopodium serratum*)
Life Root (*Senecio aureus* and *S. nemorensis*)
Mistletoe (*Phoradendron leucarpum* and *Viscum album*)
Mormon Tea (*Ephedra nevadensis*)
Pennyroyal (*Mentha pulegium*)
Petasites (*Petasites hybridus*)
Plants of the Senecio, Crotoparia and Heliotropium genera
Pokerroot (*Phytolacca americana*)
Ragwort (*Senecio jacobea*)
Rue (*Ruta graveolens*)
Sassafras (*Sassafras albidum*)
Skullcap (*Scutellaria laterifolia*)
Yohimbe (*Pausinystalia yohimbe*)