



Love your liver

Your liver is a powerhouse organ, leading the charge to eliminate toxins that assault your body – but it needs your help, writes naturopath Tania Flack.

In our stressful and somewhat toxic modern world, there is one organ that stands at the front-line of our defences, breaking down toxins, coordinating metabolic processes, and ensuring that the body performs optimally. The liver is the ultimate multi-tasker, performing a broad array of essential activities in the body; however, poor diet, stress, medications, and the chemicals and pesticides ever-present in our environment and food chain can continuously undermine its performance. Famous for being the only organ with the ability to regenerate its cells once damaged, even the liver has its limits and, over time, a Western diet and lifestyle can really take a toll and reduce its capacity to perform. This can have repercussions in a number of surprising areas, including, mental performance, mood, energy, ageing, hormone balance and even obesity. So, how can you help to protect your liver from the bumps and bruises of the modern world?

Back to basics

The liver is a large triangle-shaped organ that sits in the upper right hand side of the abdomen, tucked up under the diaphragm. An adult liver weighs approximately 1.4 kg and is comprised of two major lobes containing a multitude of tiny cells called hepatocytes, which act like individual factories, constantly receiving, converting, storing or excreting an array of substances. The liver is a blood-rich organ, holding approximately 13 percent of the body's total blood supply at any one time. Everything that needs processing by the liver arrives in the bloodstream via the hepatic artery and the hepatic portal vein.

Once substances have been processed by the hepatocytes, the by-products are excreted into bile which is ultimately eliminated via the bowel, or into blood, which is filtered by the kidneys and excreted in the urine. The liver is considered both an organ of elimination and a glandular organ because it produces bile, a substance that breaks down dietary fats so they can be more easily absorbed from the small intestine. The gall bladder, which sits just under the liver, acts as a reservoir for bile, excreting it via the common bile duct into the duodenum when a meal containing fats is eaten. One of the liver's most important jobs is to neutralise and excrete the toxins that we are exposed to daily, both from environmental sources and those we make within the body, such as wastes produced by gut bacteria, hormones, and general metabolic by-products.

The liver was designed to easily handle these internally-produced wastes; however, our exposure to environmental toxins has outstripped the liver's ability to adapt to this chemical onslaught. This may be associated with the increase in many common health problems, such as cancer, developmental delays, behavioural problems, hormone imbalance, and reproductive decline, all of which experts believe may be linked to exposure to environmental chemicals. Over 80,000 chemicals are used in everyday products that we are exposed to, via the food we eat, the air we breathe, our water, medications, personal care products, household cleaners, and any number of items that we have direct contact with. The health effects of these chemicals and their interaction with each other have not been investigated.

Famous for being the only organ which can regenerate its own damaged cells, even the liver has its limits - and a poor diet can really take a toll.



✿ Is your liver stressed?

These are the signs and symptoms to look for:

- Poor morning appetite
- Nausea
- Fatigue
- Brain fog
- Headaches
- Excess weight in the upper abdomen
- Fluid retention
- Bad breath
- Hormone imbalance
- Changes in bowel function
- Itchy skin
- Irritability, signs of anger
- Small fatty deposits under the skin
- Yellowing of the whites of the eyes

Hormone havoc

The liver was designed to effectively support healthy hormone metabolism; however, it seems to be unable to keep up with our ever-increasing exposure to endocrine-disrupting chemicals, an important group of toxins that impact hormonal and reproductive health at many levels. These include bisphenol-A (commonly found in plastics), phthalates (from cosmetics, skin creams and perfumes), and fire retardants infused into carpets, furniture and electronics. These all have the capacity to interfere with the development and health of the endocrine system. Several major studies have identified a decline in endocrine health correlated with exposure to environmental toxins. Of particular note is new research which links exposure to common environmental toxins with the catastrophic 50 percent drop in sperm count in the past 40 years, specifically seen in Western men (from Australia, North America and Europe).

In the past 30 years, the incidence of testicular cancer in Australian men has also increased, by over 50 percent. This rate is far too high to be explained away by improvements in testing, with many experts believing it may be linked back to exposure to toxins in utero, during the delicate stage of foetal development when testes are being formed. The exponential rise in breast cancer has also been associated with exposure to common toxins, and at least 60 substances have been shown to cause mammary gland cancer in animal studies, including food additives, flame retardants, chemical solvents, dyes, industrial chemicals used to make rubber, vinyl and polyurethane foams, pesticides; and environmental pollutants.

There has also been a marked increase in precocious (early) puberty in Australian children. Researchers from the Murdoch Children's Research Institute studied 3,700 children from low socio-economic backgrounds, and found that boys were about four times more likely to reach puberty by the age of 10-11 and girls were more than twice as likely.

What you can do

Diet The food you eat drives your liver health; a clean, wholefood diet sets the foundation for robust liver function, whereas a highly processed diet, rich in sugar, saturated fat, additives and

chemicals is a recipe for disaster. One of our biggest sources of toxin exposure is our diet, which often comes preloaded with a range of chemicals and pesticides that are delivered straight to the liver, via the gut. Avoiding processed foods is a must, as they can contain additives, preservatives, colourings, emulsifiers, artificial flavouring ... the list is endless. Plastics and various other chemicals in food packaging may also affect us.

The best way to ensure a healthy liver is to support it with a nourishing, wholefood diet that includes a high intake of vegetables, along with fruit, nuts, seeds, legumes, unprocessed whole grains, clean protein, and small amounts of healthy fat. If you really want to minimise your exposure to toxins, consider an organic diet - or at the very least, ensure all of your food comes from whole sources, with minimal processing, and that all of your fruits and vegetables are carefully washed or peeled. A wholefood diet will automatically start to improve liver function and can even reverse fatty liver, and while results may be slow, it will be worth it.

Herbs Many herbs can be used to support healthy liver function; these should be professionally prescribed by a qualified practitioner to ensure maximum benefit.

St Mary's thistle Arguably one of the most well-known liver herbs, this has been used medicinally for thousands of years. Its beneficial effects on the liver have long been recognised, and it was recommended as a treatment for liver and gall bladder complaints in some of the earliest pharmacopoeias. Over the past 40 years, intensive research has confirmed its therapeutic value in a wide range of liver disorders. It has powerful antioxidant, anti-inflammatory, and anti-fibrotic properties which all protect the liver. One of its constituents, silybin, is so powerful it is routinely used hospitals to reverse liver damage in cases of deadly death cap mushroom poisoning.

Turmeric This is well known as the culinary herb that lends its bright yellow colour to traditional Indian cooking. Its major constituent, curcumin, has powerful anti-inflammatory and antioxidant hepatoprotective (liver-protective) properties that have been extensively studied in diverse experimental models, where it was shown to effectively prevent liver damage induced by aflatoxins (toxic mould), iron overdose, certain medications, and alcohol. Some animal studies have even found that curcumin was able to reverse cirrhosis of the liver, to some extent. Traditionally used in liver and gallbladder complaints, turmeric is known to stimulate the production of bile in the liver. Blockage of bile flow in the liver can

lead to cirrhosis (scarring) of the liver. Curcumin has been shown to prevent damage caused by impaired bile flow in the liver in animal studies and to effectively induce the contraction of the gall bladder, enhancing bile flow in a human clinical trial. It also has beneficial effects on blood sugar and cholesterol levels which, when combined with its potent anti-inflammatory and antioxidant effects, may prove beneficial in the treatment of metabolic syndrome and fatty liver.

Globe artichoke Renowned for its bitter properties, globe artichoke has been used as a food and herbal medicine since early Greco-Roman times. It has a broad range of actions and has been traditionally been used to stimulate the digestive system, tonify the liver, and increase bile flow. Globe artichoke has many actions that protect and restore the liver: it increases production of bile and stimulates its flow in the liver; it acts as a bitter tonic, enhancing digestion and promoting effective elimination via the bowel; it has diuretic properties that increase excretion of urea and other waste products via the kidneys; and it helps to mobilise energy reserves and lower cholesterol, making it ideal for people with fatty liver and metabolic syndrome.

Dandelion This humble herb has a range of beneficial properties that support healthy liver function. The root has traditionally been used for gastrointestinal and liver complaints and to stimulate digestion. Animal studies have demonstrated its beneficial effects on bile production and flow, plus it has bitter, tonic, anti-inflammatory, and hepatoprotective properties. It has been shown to significantly increase detoxification activity within the liver, and to normalise liver enzyme levels and reduce liver inflammation in animal studies.

TOP 10 liver-lovin' foods

- 1 Broccoli
- 2 Cauliflower
- 3 Artichoke
- 4 Jerusalem artichoke
- 5 Garlic
- 6 Onions
- 7 Leafy green vegetables
- 8 Green tea
- 9 Nuts
- 10 Beetroot



What is a fatty liver?

Non-alcoholic fatty liver is the leading cause of liver disease in Australia, and is estimated to affect approximately 30 percent of all Australian adults. Of those affected, up to 20 percent can go on to develop cirrhosis and more serious complications if the condition isn't addressed. While genetics may play a role here, fatty liver is essentially a disease of Western diet and lifestyle. It is closely associated with metabolic syndrome, insulin resistance, central obesity, elevated cholesterol levels, and cardiovascular disease. It causes infiltration of fat deposits throughout the liver and, over time, affects its ability

to function; left untreated, it can cause fibrosis of the liver and even liver cancer in severe cases. Most worryingly, the rates of fatty liver in Australian school-children are on the rise, and currently stand at approximately 15 percent. This is especially concerning when you consider the potential health impacts of a reduced capacity to metabolise environmental toxins. Luckily, fatty liver can be reversed in most cases, although it requires long-term modification of diet and lifestyle. Treatment for fatty liver must revolve around lifestyle interventions, including weight reduction, dietary modification, and physical exercise.

Nutrients You may be surprised to learn that the liver needs the amino acids from protein to do its job effectively. This can come from either animal protein or a combination of plant proteins.

N-acetyl cysteine, glycine, and glutamine These are the stand-out 'three amigos' of the amino acid family, which combine nicely to support healthy glutathione activity. Glutathione is a powerful antioxidant enzyme, which is produced in the liver and detoxifies harmful toxins so they can be excreted in the bile.

L-carnitine Another amino acid with an array of benefits that support healthy liver function, reduce oxidative stress, modulate inflammation, improve mitochondrial function, and play a role in the detoxification of a range of potentially toxic substances. A clinical trial has shown 2 grams of L-carnitine per day for 24 weeks led to a significant improvement in liver function, normalised liver enzymes, and reduced cholesterol, blood sugar and inflammatory markers in a group of 80 people with fatty liver.

Fish oils These also support liver health due to their ability to reduce inflammation and normalise blood fats. A clinical trial of 56 patients with fatty liver disease showed that 1 gram of omega-3 essential fatty acids daily for 12 months improved liver function, and ultrasound investigation also showed significantly reduced fatty deposits in the liver.

Tania Flack is a respected Australian naturopath.
www.taniaflack.com References available on request.