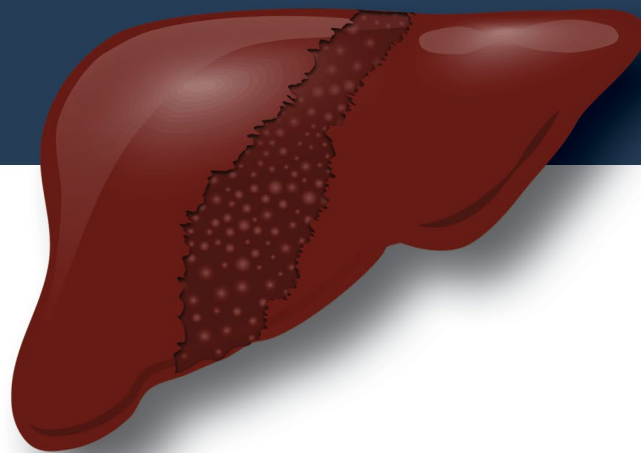




NaturalHealth365
Powerful Solutions

SLASH

YOUR RISK OF LIVER DISEASE



Jonathan Landsman



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NONALCOHOLIC FATTY LIVER DISEASE

—◆◆—
AN INTRODUCTION



SECTION 1

NAFLD: AN INTRODUCTION

LIVER HEALTH



Once a little-known condition, nonalcoholic fatty liver disease (NAFLD) is now a full-fledged national epidemic that affects a shocking one out of four Americans (1). Currently the leading cause of chronic liver disease in the country, NAFLD is strongly linked to yet another national crisis of epic proportions - obesity.

With two out of three Americans either overweight or obese, it is not surprising that rates of NAFLD are soaring. And, although the condition is most common in adults over 40, children are increasingly at risk as well.

In a recent study published in the *Journal of Pediatrics*, researchers found that a larger waist circumference at age 3 increases the likelihood that a child will have markers of NAFLD by the time he or she reaches age 8 (2).

NAFLD: AN INTRODUCTION

THE BIG PICTURE: TROUBLING STATISTICS



As the name signifies, nonalcoholic fatty liver disease is defined as the presence of excess liver fat - more than 5 percent of the organ's weight - that is unrelated to alcohol usage. In other words, most cases of NAFLD develop due to the consumption of too many 'empty' calories – containing little to no nutritional value.

Obesity, insufficient exercise and poor nutrition constitute a “trifecta” of unhealthy factors that can set the stage for NAFLD. In fact, a 2014 study shows that over 90 percent of patients undergoing bariatric surgery have NAFLD (3).

Insulin resistance, high blood sugar and high cholesterol (conditions which often accompany obesity) are additional risk factors for NAFLD. Of course, genetics, the use of toxic medications, overly rapid weight loss and exposure to environmental pollutants can also play a role.

NAFLD: AN INTRODUCTION

THE BIG PICTURE: TROUBLING STATISTICS

If left untreated: NAFLD can progress to a more serious condition known as non-alcoholic steatohepatitis (NASH), in which liver scarring and inflammation occur. NASH can block the flow of blood in the liver, impair the processing of nutrients or hormones and interfere with the vital process of detoxification.

The consequences of NASH can include: liver failure, liver cirrhosis (major scarring) and liver cancer.

Not only is NAFLD and its complications now one of the top ten causes of death in the United States, but the condition costs the United States healthcare system a staggering \$32 billion every year (4). A researcher describes NAFLD costs as a virtual “tsunami” that could drive up medical costs for years to come - and potentially swamp the healthcare system (5).

But, here’s the good news: you can prevent and even reverse NAFLD by making simple lifestyle changes involving good nutrition, sufficient exercise, proper supplementation and therapeutic herbs. Of course, minimizing your exposure to toxic medications, alcohol and pollutants is also of primary importance.



NAFLD: AN INTRODUCTION



WHAT ARE THE SYMPTOMS OF NAFLD and NASH?

Mild cases of nonalcoholic fatty liver disease may cause no symptoms, and experts say that many individuals with NAFLD are not even aware that they have it. As the condition worsens and progresses, however, symptoms can include fatigue, loss of appetite, weight loss, nausea, vomiting and pain in the upper right section of the abdomen.

Other possible signs include confusion, bloating, dark-colored urine, excessive sweating and a tendency towards easy bruising.



In 20 to 30 percent of NAFLD cases, the condition progresses to nonalcoholic steatohepatitis. Possible NASH symptoms include abdominal swelling, enlarged blood vessels just under the skin, nausea, vomiting, diarrhea, reddened palms and jaundice – indicated by yellowing of the skin and the whites of the eyes (6).

Bottom line, if you think you may have liver disease, promptly consult a trusted integrative doctor for a proper diagnosis and treatment plan.

NAFLD: AN INTRODUCTION



WHEN IT COMES TO TREATING NAFLD, WESTERN MEDICINE “DRAWS A BLANK”

In spite of conventional medicine’s best efforts, the fact is: no FDA-approved drug exists that can cure NAFLD. Cholesterol-lowering drugs (statins), in particular, have been found to be totally ineffective against the condition.

Conventionally-trained physicians may advise alleviating NAFLD with gradual weight loss through diet and exercise. Losing from 3 to 5 percent of body weight can reduce fat in the liver, but it may take a loss of 10 percent or more to reduce liver inflammation.

Although these recommendations are well-intentioned, the fact is: conventional medical diets are often frustratingly ineffective when it comes to paring away pounds.



NAFLD: AN INTRODUCTION



WHEN IT COMES TO TREATING NAFLD, WESTERN MEDICINE “DRAWS A BLANK”

If type 2 diabetes is present, doctors may prescribe blood sugar-lowering drugs such as metformin. Plus, they may recommend that their patients be vaccinated against hepatitis A and B – as a standard procedure.

In terms of a proper diagnosis, Western medicine may use ultrasound, computer tomography (CT) scans, MRIs (magnetic resonance imaging) and blood tests to measure liver enzymes. However, a liver biopsy is considered the most definitive test used to diagnosis the problem.

Keep in mind, once NAFLD has progressed to NASH - a liver transplant may be the only treatment option.



LOVE YOUR
LIVER
WITH HEALING FOODS

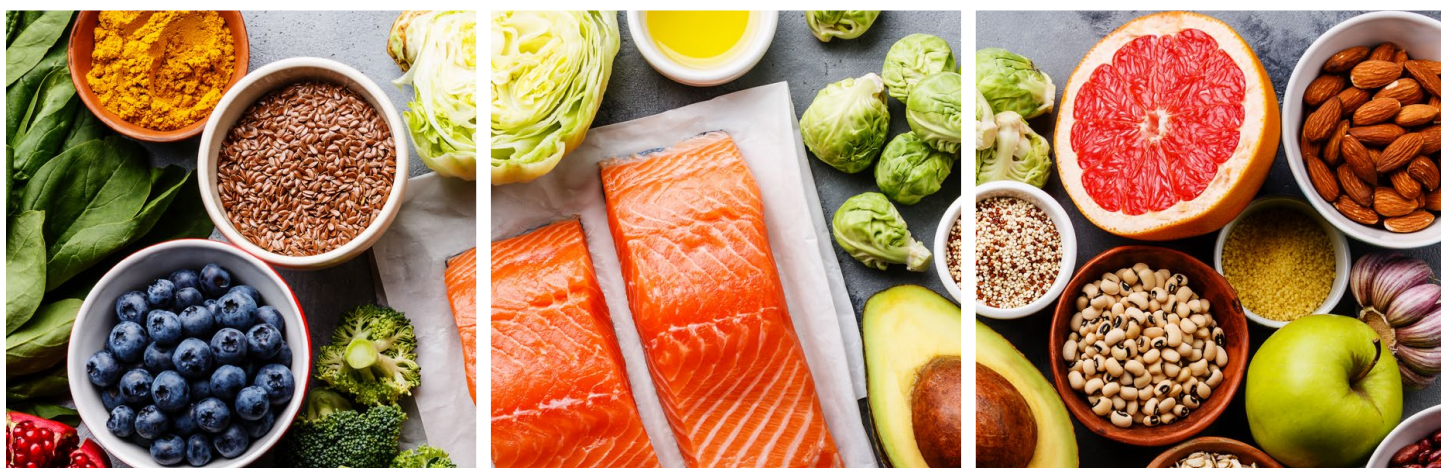


SECTION 2

LOVE YOUR LIVER



DON'T WAIT FOR PROBLEMS: Love Your Liver with Healing Foods



When it comes to preventing and even reversing NAFLD, the importance of diet can't be overstated.

Refined sugar, alcohol, trans fats, fried foods, overly processed foods, fast foods or “junk” foods are all taboo – and should be avoided in favor of organic foods consisting of nutrient-dense, fiber-rich and pesticide-free choices.

For example, the Mediterranean diet - rich in fresh fruits and vegetables, whole grains and healthy fats - is particularly beneficial for individuals with NAFLD. In fact, research shows that it is associated with lower rates of the disease (7).

Of course, it's important to drink plenty of clean (filtered) water to stay well hydrated and promote detoxification throughout the body.

That said, certain foods are so rich in liver-soothing plant compounds that they deserve special mention - and a prominent place in the diets of people with NAFLD.

LOVE YOUR LIVER

ARTICHOKES



With potent detoxifying and antioxidant effects, artichokes seem almost custom-tailored to support the liver and combat NAFLD. These tasty delicacies contain a phenolic acid called cyanin, which helps to flush excess fat and cholesterol from the liver.

And - like their close relative, the milk thistle - artichokes contain the flavonoid silymarin, which has clinically-proven protective effects on liver cells.

Artichokes also contain chlorogenic acid - which enhances bile production - along with various antioxidant carotenoids (8). And, particularly significant for those with NAFLD, artichoke extracts have been shown in studies to inhibit the proliferation of liver cancer cells.

In a study published in *Alimentary Pharmacology and Therapeutics*, subjects with digestive complaints such as bloating, nausea and diarrhea were treated with either artichoke leaf extract or placebo. Researchers concluded that the artichoke group experienced significantly greater improvement of symptoms (9).

Opt for fresh, organic artichokes rather than the marinated variety, as the latter tends to be high in sodium. You can serve them steamed with a little grass-fed butter, a dash of sea salt and a squeeze of lemon - and prepare to enjoy the mild, nutty flavor of the hearts and the bottoms of the basal leaves.

Naturally, you should check with your integrative physician before using artichokes or artichoke extracts to treat NAFLD.

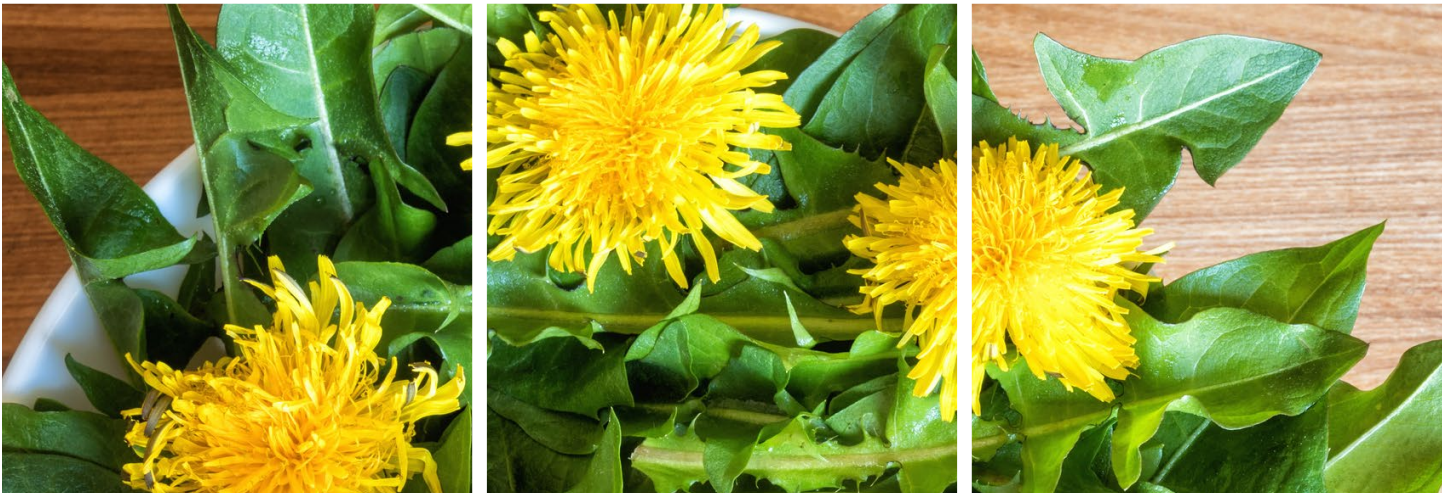
LOVE YOUR LIVER

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DANDELION GREENS

Dandelion greens have long been revered in herbal medicine as a liver tonic - and for good reason.

Packed with antioxidants like vitamins A and C, dandelion greens also supply healthy amounts of vitamin E, vitamin K, folate and beta-carotene - a natural plant pigment which helps to usher fat from the liver.



In addition, dandelion greens can prevent oxidative damage to liver cells, inhibit the absorption of fat, lower LDL cholesterol, reduce liver inflammation and promote weight loss. One animal study published in *Phytotherapy Research* showed that dandelion greens protected against liver damage from toxic carbon tetrachloride and alcohol (10).

Use young, tender, fresh dandelion leaves in a spring mix, where more mild-flavored greens - such as romaine lettuce - can balance their tart taste. You can also use them to add zip to sandwiches, or impart tangy flavor to soups and stews.

LOVE YOUR LIVER

◆◆◆

BURDOCK ROOT

If you enjoy Asian food, you may have already sampled burdock root - which is found in many of their traditional dishes. Long treasured in Traditional Chinese Medicine as a detoxifier and blood cleanser, burdock root has been shown in scientific studies to help the liver heal from damage from alcohol and other toxins.

Loaded with antioxidants like quercetin and luteolin, burdock root also features inulin, a natural dietary fiber. Plus, burdock root has prebiotic properties, meaning that it provides food for beneficial bacteria in the gut microbiome - which is vital for liver health.

Burdock root can be used in a tasty sesame oil-based stir fry - or simply cooked like any root vegetable. It can also be brewed into a soothing tea to help ease an inflamed liver.



LOVE YOUR LIVER

GRAPEFRUIT



Rich in vitamin C, this refreshing citrus fruit gets additional protective powers from its content of naringenin and naringin, a pair of potent antioxidants. These can decrease fats in the liver while increasing levels of fat-burning enzymes - and have been shown in studies to reduce liver fibrosis, or scarring.

Grapefruit can also help combat the harmful effects of alcohol on the liver. In addition, its high content of dietary fiber makes it a valuable tool against the obesity and type 2 diabetes that can trigger NAFLD.

LOVE YOUR LIVER

DARK LEAFY GREENS

Although dandelion greens may have the best reputation as a liver ally, don't overlook other dark leafy greens such as organic kale and collard greens. Closely tied to liver health, dark leafy greens contain chlorophyll - which binds to toxins and heavy metals and helps remove them from the bloodstream.

In addition, dark leafy greens promote healthy liver function by enhancing the flow of bile. They are also high in magnesium – which is essential for regulating blood pressure.

And, their high levels of dietary fiber help to impart a sense of fullness, therefore helping to maintain a healthy weight.



LOVE YOUR LIVER



DARK BERRIES



When it comes to the coloration of berries, “the deeper the better” is the rule for supporting liver health. Jewel-toned, vividly-colored blueberries, blackberries, cranberries, currants - and even dark cherries - are rich in anthocyanins, antioxidant plant pigments that protect against the oxidative stress that can contribute to NAFLD.

Studies have shown that consuming dark berries for three to four weeks can slow the formation of scar tissue and protect the liver from damage. And - as with artichokes - blueberries have even been found to inhibit the growth of liver cancer cells in laboratory studies (11).

LOVE YOUR LIVER

CRUCIFEROUS
VEGETABLES



Cruciferous vegetables, such as broccoli, cauliflower, Brussels sprouts, cabbage and kale, are nutritional “superstars” with a well-deserved reputation for fighting disease. They are also “liver superfoods” that help to prevent and reverse NAFLD by a variety of different mechanisms.



Not only do cruciferous vegetables help to replenish glutathione, the body’s most important disease-fighting antioxidant, but they are rich in an anti-inflammatory and anticancer compound called sulforaphane.



The undisputed kings of sulforaphane content are broccoli sprouts, which tower over all other cruciferous veggies when it comes to levels of this beneficial substance. A groundbreaking study of men with fatty liver disease showed that broccoli sprout extract reduced oxidative stress and improved liver enzyme levels (12).

Hearty cruciferous veggies retain their liver-protective qualities even when cooked. Season Brussels sprouts or cauliflower florets with a little garlic or chili powder and roast them with lemon juice or balsamic vinegar - and prepare to enjoy their earthy flavor and meaty, satisfying texture.

Your liver will definitely thank you for it.

LOVE YOUR LIVER



WALNUTS PLUS OTHER NUTS & SEEDS



Walnuts are high in arginine, an amino acid which helps to detoxify ammonia - a waste product and toxin which can build up when liver problems are present. They are also rich in vitamin E, glutathione and beneficial omega-3 fatty acids.

Nuts, in general, have been shown to have beneficial effects on liver disease.

In a study published in *World Journal of Gastroenterology*, eating nuts was associated with improved levels of liver enzymes (13). In another study, researchers found that men who ate healthy quantities of nuts and seeds were at lower risk of developing NAFLD than men who ate small quantities.

Walnuts, almonds, hazelnuts, cashews - not to mention tasty sunflower and pumpkin seeds - are ideal liver-friendly snacks.

LOVE YOUR LIVER

OLIVE OIL

This healthy oil, a cornerstone of the Mediterranean diet, improves insulin sensitivity - thereby helping to ward off type 2 diabetes, a risk factor for NAFLD. Consuming as little as a teaspoon per day of olive oil has been shown to improve levels of liver enzymes and fats - and to increase blood flow to the liver.

Olive oil also contains oleuropein, a phenolic compound which helps to reduce inflammation in the liver. Make a liver-nourishing salad dressing by combining extra-virgin olive oil, balsamic vinegar, crushed garlic, oregano and freshly ground black pepper.



POWERFUL
HERBS
FOR LIVER HEALTH



SECTION 3

POWERFUL HERBS



DISCOVER the MOST POWERFUL HERBS for LIVER HEALTH

Herbal remedies can play an important role in preventing and reversing NAFLD - without the toxic side effects that can accompany the use of pharmaceutical drugs. Of course, check with a knowledgeable integrative physician before using these herbs for NAFLD.



POWERFUL HERBS



MILK THISTLE

Milk thistle is undeniably one of the best herbal liver remedies. It's rich in a flavonoid known as silymarin - which detoxifies the liver, decreases oxidative stress and even helps with the regeneration of new liver cells.

And the “proof is in the pudding” - for example, silybin (a constituent of silymarin) has been shown in clinical studies to substantially reduce the biochemical, inflammatory and ultrasonic markers of fatty liver (14).

Milk thistle also combats insulin resistance, which sets the stage for diabetes and - by extension - NAFLD.

Look for a high-quality milk thistle extract that is standardized to contain 70 to 80 percent silymarin. This herb has been shown to prevent the depletion of glutathione, reduce liver fat accumulation and fight NAFLD at the cellular level by ameliorating stress damage to mitochondria, the “powerhouses” of the cells.



POWERFUL HERBS



DANDELION ROOT



The liver-healing qualities of the dandelion plant are not limited to its leaves. Dandelion root has been used for centuries in herbal medicine to detoxify the liver and treat hepatic diseases.

Dandelion root helps to reduce inflammation, cut levels of LDL cholesterol, and decrease excess fat in the liver. It is also rich in inulin, a prebiotic soluble fiber that provides food for “friendly” bacteria in the intestinal tract.

In addition, dandelion root’s content of chlorogenic acid means that it may help combat obesity. This versatile phenolic compound has been shown to promote weight loss and reduce levels of hormones responsible for storing fat.

POWERFUL HERBS

SCHISANDRA BERRY

Botanically known as *Schisandra chinensis* and also called Chinese magnolia vine, schisandra has long been used in Traditional Chinese Medicine to treat liver ailments. The berries have potent protective effects on the liver, improving liver enzymes while accelerating the proliferation of cells essential for repair and regeneration.

In animal studies, schisandra extract has been shown to alleviate NAFLD by preserving glutathione, reducing serum triglycerides, cutting LDL cholesterol and reducing hepatic triglycerides - liver fat - by a robust 28 percent (15).

In fact, a 2010 clinical study published in the *International Journal of Clinical Pharmacology* showed that schisandra extract can even benefit patients after a liver transplant (16).

Schisandra extract is available in tablet and capsule form. And, powdered schisandra berries can also be steeped into a tea.



POWERFUL HERBS

TURMERIC

No list of herbal remedies would be complete without turmeric - which does double duty as a kitchen spice and a clinically-proven “superstar” of alternative healing.

Curcumin, turmeric’s active ingredient, is not only a strong antioxidant and anti-inflammatory, but capable of neutralizing the effects of leptin - a hormone that plays a crucial role in the development of liver fibrosis.

In a groundbreaking study published in *Phytotherapy Research*, researchers found that curcumin acted against NAFLD by decreasing body weight, LDL cholesterol and triglycerides - while reducing accumulation of liver fat by an astounding 78.9 percent (17).

Turmeric used in the quantities found in food may not be sufficient for therapeutic effects, but - no worries. Curcumin is available in supplementary form in tablets, capsules and extracts.



POWERFUL HERBS

WOLFBERRY



Wolfberry, also known as goji berry, is the fruit of the *Lycium barbarum* plant. Long used in Traditional Chinese Medicine to treat liver ailments, wolfberry can increase antioxidant levels and discourage the harmful oxidation of fats.

Studies have shown that these versatile medicinal berries can reduce inflammation and decrease levels of malondialdehyde, a marker of oxidative stress. Wolfberries are believed to be particularly effective against liver damage induced by high-fat diets, alcohol and other toxins - making them an important addition to any 'toolkit' of NAFLD-fighting herbs.

Nibble the raw, fresh berries out of hand as a snack, brew them into a tea, or enjoy them as a juice. You can also sprinkle wolfberries on cereal or salads.

POWERFUL HERBS

COFFEE



Those who can't do without their "cuppa joe" will be heartened to learn that drinking coffee may be one of the best things you can do for fatty liver.

Any extensive array of studies have shown that drinking coffee helps to lower the inflammation that occurs with NAFLD - and lessen the risk of cirrhosis and liver cancer (18).

As if this weren't impressive enough, scientists report that drinking coffee improves antioxidant status and increases levels of disease-fighting glutathione in the body. But be sure to avoid sweetening your coffee with refined (highly-processed) sugar.

Stevia is a healthier option, while almond milk is a good candidate for lightening your brew. Adding a dash of cinnamon or unsweetened cocoa powder can also add extra flavor - and boost the antioxidant properties even further.

NUTRITIONAL SUPPLEMENTS

FOR LIVER HEALTH



SECTION 4

NUTRITIONAL SUPPLEMENTS

THE BEST NUTRITIONAL SUPPLEMENTS FOR LIVER HEALTH

A large variety of vitamins and nutrients have been shown to have value in preventing and improving NAFLD. Talk to your integrative physician about employing these as part of your natural arsenal of ammunition against NAFLD.



NUTRITIONAL SUPPLEMENTS

VITAMIN E



Vitamin E, a potent antioxidant, has been scientifically validated to be effective in treating NAFLD.

In one study, 800 IU of vitamin E a day for 96 weeks improved levels of liver cell-injury markers in the blood, reduced liver fat levels and decreased inflammation (19). Even relatively low-dose vitamin E - in the neighborhood of 450 IU a day - can reduce levels of liver enzymes, which indicate severity of liver cell injury.

By reducing oxidative stress and liver cell death, vitamin E may be able to prevent NAFLD before it even develops. Natural health experts typically recommend dosages of 800 IU to 1200 IU per day.

NUTRITIONAL SUPPLEMENTS



VITAMIN D



An international team of researchers from the United States, India and Saudi Arabia recently concluded that vitamin D can help treat and prevent NAFLD - even serving to impair its progression to more serious forms, such as liver cancer.

In fact, one remarkable study showed that having sufficient levels of the “sunshine vitamin” reduces the risk of liver cancer by a stunning 50 percent (20).

NUTRITIONAL SUPPLEMENTS

VITAMIN D

Vitamin D is found in a limited number of foods - including egg yolks, mushrooms, cheese and cold-water fatty fish. It is also produced in the skin in response to sunlight, and some experts recommend getting at least 20 minutes of direct sunshine several times a week.

However, supplementation may be necessary to maintain sufficient levels of vitamin D in the blood.

Most integrative healthcare providers call for a vitamin D blood concentration of at least 40 ng/mL, with 50 to 80 ng/mL considered the optimal range.

The amount of vitamin D needed to reach optimal concentrations can depend on your weight, age, lifestyle, health status and even geographic location. For maximum benefit, opt for vitamin D3 (cholecalciferol) rather than vitamin D2, as the former is more effective in raising concentrations in the blood.



NUTRITIONAL SUPPLEMENTS

OMEGA-3 FATTY ACIDS

Research has shown that people with low levels of dietary omega-3s are susceptible to NAFLD and diabetes. These beneficial fatty acids are both antioxidant and anti-inflammatory, and can help improve insulin sensitivity, reduce serum triglycerides and stimulate fat utilization in the liver.



In one human trial published in *Indian Journal of Gastroenterology*, 1,500 mg a day of omega-3s resulted in significant decreases in markers of liver cell damage and triglyceride levels (21).

Omega-3 fatty acids are found in flaxseeds, walnuts and cold-water fatty fish, such as wild-caught Alaskan salmon. You can get supplementary omega-3 fatty acids by taking a high-quality fish oil from a reputable source.

NUTRITIONAL SUPPLEMENTS



SAMe

SAMe is attracting researchers' interest with its potential to directly stop the progression of mild NAFLD to dangerous NASH.

This antioxidant compound (alternately known as S-adenosylmethionine) can help mitigate the severity of NAFLD by replenishing levels of glutathione in the liver. In addition, SAMe improves levels of liver enzymes and helps to suppress pro-inflammatory genes.

Look for SAMe in a high-quality, enteric-coated formulation. Most natural health experts advise starting with 400 mg daily, and increasing to an optimal dosage of 800 mg a day.

SAMe is best taken on an empty stomach, and - to avoid the risk of disturbed sleep - should not be taken after 3 pm.

Please note: SAMe can interact with certain medication and supplements, including antidepressants and St. John's wort. So, don't take SAMe without first talking to your integrative healthcare provider.



NUTRITIONAL SUPPLEMENTS



N-ACETYL CYSTEINE

A derivative of the amino acid cysteine, this sulfur-rich compound protects liver cells against damage and helps to replenish glutathione. In fact, NAC does this so effectively that it is used medically to prevent liver damage following acetaminophen overdose.

Natural health experts recommend taking 500 to 600 mg a day of NAC for ongoing liver support and defense against toxins.



NUTRITIONAL SUPPLEMENTS

RESVERATROL

Resveratrol, a plant compound found in the skins and seeds of berries and grapes, is yet another potent antioxidant that can protect liver tissue and prevent and treat NAFLD. This non-toxic flavonoid interferes with the formation of new liver fat, reduces insulin resistance, and decreases liver inflammation.



In an extensive review published in *Journal of Traditional and Complementary Medicine*, the authors credited resveratrol with “very promising phytochemical properties in the treatment of NAFLD.” (22).

In animal studies, resveratrol activates AMPK - a molecule which reduces liver fat accumulation.

NUTRITIONAL SUPPLEMENTS

PROBIOTICS and PREBIOTICS

Researchers say that proper balance in the gut microbiota - a community of trillions of microorganisms living in the intestinal tract - is essential for health.

Dybiosis, or imbalance in the gut flora, can not only cause gastrointestinal conditions such as celiac disease and IBD - but can also trigger obesity, type 2 diabetes, and NAFLD.



Here's where probiotics (functional foods or supplements that encourage the presence of friendly bacteria) come to the rescue. Both probiotics and prebiotics (non-digestible carbohydrates that serve as food for "friendly" bacteria) can help to restore a healthy balance of microorganisms and reduce liver inflammation (23).

NUTRITIONAL SUPPLEMENTS

PROBIOTICS and PREBIOTICS

Recent studies have highlighted the beneficial effects of this pair of supplements. In a study published in *American Journal of Clinical Nutrition*, researchers found that supplementing NAFLD patients with probiotics and prebiotics caused greater reductions in liver inflammation than in the control group (24.)

Good sources of probiotics include fermented foods such as yogurt, kimchi, and sauerkraut. Prebiotics can be found in whole, organic foods such as onions, bananas, honey, garlic and wheat.

Probiotics are also available as supplements, in the form of freeze-dried powders and liquids. An integrative physician might recommend amounts ranging from 1 to 15 billion CFUs - or colony forming units - a day.



NUTRITIONAL SUPPLEMENTS

ALPHA LIPOIC ACID

An organosulfur compound produced naturally by the body, ALA is responsible for turning nutrients into energy.

It is also a powerful natural antioxidant that excels at regenerating other liver-protective antioxidants, including vitamins C and E, glutathione and CoQ10. And, finally, ALA works to protect fragile cell mitochondria.

As ALA helps to regenerate damaged liver tissue and helps to prevent the accumulation of triglycerides in the liver, it can be a valuable tool for combating NAFLD. According to Burton Berkson, MD, PhD, an expert consultant on ALA for the U.S. Centers for Disease Control and Prevention (CDC), ALA lowers liver enzymes, reduces viral loads and alleviates liver disease symptoms (25).

Integrative physicians may recommend 100 to 200 mg of ALA a day to support liver health.



BEST
JUICES
FOR LIVER HEALTH



SECTION 5

JUICES FOR LIVER HEALTH

BEETROOT JUICE

Juicing can be an effective way to detoxify and cleanse the liver with a combination of liver-friendly nutrients.

Beetroot juice, high in beneficial nitrites and the amino acid betaine, has been shown to assist in the breakdown and removal of fats from the liver, reduce oxidative damage and increase natural detoxification enzymes.

Beetroot juice is a mainstay of many detox recipes, with additional ingredients - such as cucumber, celery, cilantro, dandelion greens and lemons - contributing cleansing and therapeutic qualities of their own.



According to our friend Linda Kordich, an expert in the benefits of juicing, says that the 'King of Liver Cleansing' juices is: Apple / Beet. Juice 4 red delicious apples and one-half beet with beet greens.

For more variety to your juice: combine half a beet, half a cucumber, 2 carrots, 3 celery stalks, 2 stalks of chard and a handful of dandelion roots or parsley. Plus, you can add the juice of half a lemon for extra zest.

MINIMIZING **EXPOSURE** TO **TOXINS**



SECTION 6

MINIMIZE TOXINS



MINIMIZE EXPOSURE TO TOXINS

Along with breaking down hormones, drugs and environmental toxins, the liver is also responsible for clearing the body of naturally-occurring waste products, such as ammonia and bilirubin.

But, exposure to heavily processed foods, GMOS, trans fats, preservatives, artificial sweeteners, dyes, prescription medications, alcohol, synthetic pesticides and heavy metals all add to the liver's toxic burden.

Clearly, a liver that is overwhelmed by toxins can't effectively carry out its essential functions. And, while nobody can avoid all toxins, there are steps you can take to minimize your exposure and reduce the risk of harm.

To remove pesticide residue on fruits and vegetables, natural health experts advise scrubbing them gently with a soft brush and washing and rinsing them well. You can use a wash available at health food stores, or you can even make your own.

Of course, buying organic and locally grown, rather than conventionally-grown produce, is the first step in reducing pesticide exposure. Better yet, grow your own, utilizing non-toxic, organic methods to control weeds and pests.

But, before we leave the topic of environmental toxins, one threat deserves a 'special' mention.

MINIMIZE TOXINS



RED ALERT: THE DANGERS OF GLYPHOSATE



Glyphosate, the active ingredient in the weed killer Roundup, has been linked in animal trials to a higher risk of NAFLD.

In an explosive British study led by Dr. Michael Antoniou, researchers found that even infinitesimal amounts of glyphosate (a mere 4 ng/kg of body weight) increased the risk of NAFLD in rats.



The minute amount of glyphosate to which the animals were exposed corresponded to concentrations found in tap water for human consumption - and was a mind-bending 437,500 times lower than levels permitted in the United States.



Recent studies have revealed glyphosate residue on an alarming variety of foods grown in the United States, including breakfast cereals, honey and baby food. Dr. Antoniou called on regulators to reconsider the safety evaluation of all glyphosate-based herbicides - and to consider the risk caused by residues.

The study, reported Dr. Antoniou, was the first to demonstrate a causative link between “an environmentally relevant level of Roundup consumption and a serious disease.”

MINIMIZE TOXINS

TASH: A NEW THREAT TO THE LIVER



Researchers have now identified “toxicant-associated steatohepatitis”, or TASH - a condition related to exposure to industrial chemicals. TASH, which was first reported in workers exposed to vinyl chloride, has also been seen with a variety of synthetic insecticides, fungicides and herbicides.

In fact, a third of the 677 most common workplace chemicals reported in The National Institute for Occupational Safety and Health (NIOSH) pocket guide are toxic to the liver. This is an alarming - but unsurprising - development.

And, while fatty liver is the most common manifestation of TASH, cirrhosis of the liver and liver cancer have been reported as well.

EXERCISE

AND NAFLD



SECTION 7

EXERCISE & NAFLD



CAN EXERCISE HELP with NAFLD?

In a word, YES.

Clinical trials have shown that physical activity improves insulin resistance and decreases fatty acid synthesis, thereby helping to reduce liver fat. Plus, we all know that regular exercise promotes an ideal body weight - which helps us to avoid fatty liver disease.

By the way, the health benefits are not confined to one type of activity. According to a recent review published in *Gene Expression*, both aerobic and resistance exercise are effective against fatty liver disease - and both constitute a “proven strategy” to alleviate it.

In an Israeli study of 82 patients with fatty liver disease, resistance training led to a more pronounced decrease in liver fat than stretching exercises. For three months, participants took part in 40-minute sessions three times a week, during which they performed standard resistance exercises such as leg presses, chest presses and seated rowing.

The study, published in *World Journal of Gastroenterology*, also showed that resistance exercises led to a significant drop in cholesterol levels.

EXERCISE & NAFLD

CAN EXERCISE HELP with NAFLD?



In another study, researchers wanted to determine whether moderate or vigorous exercise was better for NAFLD. Vigorous exercise was defined as jogging for two and a half hours a week, while moderate exercise was defined as brisk walking for two and a half hours a week.

Moderate and vigorous exercise were equally effective in reducing liver fat - although vigorous exercise did confer the extra benefit of greater loss of weight and body fat.

The upshot of all this? It's not necessary to run marathons or compete like an Olympic athlete in order to decrease NAFLD with exercise. The simple act of getting your body moving can provide a world of benefits.

EXERCISE & NAFLD



CAN EXERCISE HELP with NAFLD?



Of course, check first with your doctor before embarking on a new fitness regimen - especially if you are substantially overweight or have been inactive for some time.

Bottom line: we hope that this eBook provides the 'spark' for you to make healthier choices in your life. Educate yourself, get the professional (and personal) support you deserve and take action today.

Remember, your life depends on it.



Save **10%** on all
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ABOUT JONATHAN LANDSMAN

Jonathan Landsman is the creator of [NaturalHealth365.com](https://www.naturalhealth365.com) and the [NaturalHealth365 podcast](#) - which features the brightest minds in natural health and healing.

Reaching hundreds of thousands of people, worldwide, as a personal health consultant, writer and podcast host – Jonathan has been educating the public on the health benefits of an organic (non-GMO) diet along with high-quality supplementation and healthy lifestyle habits including exercise and meditation.



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Push yourself to be more.

-Jonathan Landsman

