

# How Does Your Fish Oil Compare?

There are hundreds of **fish oil** brands on the commercial marketplace.

Only one brand incorporates lifesaving findings to provide optimal **omega-3** and **olive oil** benefits in one formula.

Studies published in **2014** confirm what *Life Extension*<sup>®</sup> espoused a decade ago when it introduced purified **fish oil** fortified with **olive polyphenols**.

Research clearly shows that a combination of **fish** and **olive oil** provides better effects than fish oil alone.<sup>1-8</sup> Yet most people today take **only** low-potency fish oil.

## Sesame Improves Fish Oil's Benefits

When **sesame lignans** are supplemented with **fish oil**, the omega-3 benefits are augmented.<sup>9,10</sup>

**Sesame lignans** help guard against **lipid peroxidation**, thereby extending the stability of **DHA** in the body. Sesame also directs fatty acids toward pathways that can help with **inflammatory** reactions.

**Super Omega-3** contains purified **fish oil** and **olive fruit polyphenols** plus standardized **sesame lignans**.

## 5-Star Rated Purity, Potency, And Stability

To ensure the purest, most stable, and easy-to-tolerate fish oil, **Super Omega-3** is **molecularly distilled**. It enjoys the highest **5-star rating** for **purity, quality, and concentration** from the renowned **International Fish Oil Standards** (IFOS) program.<sup>11</sup>

## Obtain Super Omega-3 At Below Wholesale Prices

A bottle containing **120** softgels of **Super Omega-3** retails for **\$32**. The regular member price for a single bottle is **\$24**.

If a member buys four bottles of **Super Omega-3**, the cost per bottle drops to **\$21**.

When a member buys 10 bottles, the cost per bottle is reduced to **\$17.05**.

Non-GMO.

**Note:** While the health benefits of **omega-3s** from fish oil are universally recognized, the critical importance of **olive oil** in maintaining healthy **vascular** function remains largely overlooked.

**Super Omega-3** provide the equivalent polyphenol content of **4 to 6 tablespoons** of **extra virgin olive oil**.

The daily dose (four regular size softgels) of **Super Omega-3 EPA/DHA with Sesame Lignans & Olive Fruit Extract** provides:

<b>EPA</b> (eicosapentaenoic acid)	<b>1,400 mg</b>
<b>DHA</b> (docosahexaenoic acid)	<b>1,000 mg</b>
<b>Typical DPA</b> (docosapentaenoic acid)	<b>156 mg</b>
<b>Olive Extract</b> (fruit and leaf) providing [39 mg polyphenols, 10.4 mg hydroxytyrosol/tyrosol, 8.8 mg verbascoside/oleuropein]	<b>600 mg</b>
<b>Sesame Seed Lignan Extract</b>	<b>20 mg</b>



Item # 01482

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To order **Super Omega-3**,  
call **1-800-544-4440**  
or visit **www.LifeExtension.com**

Advanced Vascular Support Formula

# Olive Leaf

## WITH CELERY SEED EXTRACT

**Advanced Olive Leaf Vascular Support with Celery Seed Extract** is a unique, *dual-action* formulation containing two *bioactive compounds* that support optimal cardiovascular health.

1. **Olive Leaf extract** contains **oleuropein**, a natural compound that supports healthy blood pressure already within the normal range.

Researchers using **1,000 mg** per day of **olive leaf extract** in a controlled clinical trial documented an average **11 mm Hg** decline in systolic readings and a **4.8 mm Hg** drop in diastolic readings within eight weeks!<sup>1</sup>

2. **Celery seed extract** contains **3-n-butylphthalide (3nB)**, which supports a healthy inflammatory response that is critical to maintaining a healthy circulatory system.<sup>2</sup> **Celery seed** also helps minimize the flow of calcium into the muscle cells lining blood vessels, promoting healthy blood pressure already within the normal range.<sup>3,4</sup>

In a controlled clinical trial, researchers using an equivalent amount of active compounds as found in this **celery seed extract** documented an average **8.2 mm Hg** decline in systolic readings and **8.5 mm Hg** drop in diastolic readings—in just six weeks!<sup>5</sup>

While **olive leaf** and **celery seed extracts** show impressive support individually, **Advanced Olive Leaf Vascular Support with Celery Seed Extract** combines two bioactive compounds to provide **dual-action** vascular support.

The suggested daily dose of two vegetarian capsules of **Advanced Olive Leaf Vascular Support with Celery Seed Extract** provides:

<b>Benolea® Olive extract (leaf)</b>	<b>1,000 mg</b>
[standardized to 16% oleuropein (160 mg)]	
<b>Celery3nB™ Celery seed extract</b>	<b>300 mg</b>
[standardized to 42.5% phthalides (butylphthalide and sedanolide (127.5 mg)]	

A bottle of 60 vegetarian capsules of **Advanced Olive Leaf Vascular Support with Celery Seed Extract** retails for \$36. If a member buys four bottles, the price is reduced to **\$24** per bottle.

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To order **Advanced Olive Leaf Vascular Support with Celery Seed Extract**, call **1-800-544-4440** or visit **www.LifeExtension.com**

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# The Silent Epidemic Of Liver Disease

Most people think liver disease is caused by excess alcohol or hepatitis viruses.

The reality is that the leading cause of liver disease today is **excess weight**.<sup>1-4</sup>

This form of liver degeneration associated with obesity and high blood sugar is called **nonalcoholic fatty liver disease (NAFLD)**.<sup>1,5</sup>

With epidemic levels of obese and diabetic Americans, doctors are encountering never before seen record numbers of liver disease.

One startling statistic is that **48%** of obese teen boys are estimated to have NAFLD.<sup>6</sup> Nonalcoholic fatty liver disease is now the most common cause of chronic liver disease in children and adolescents in the United States due to obesity, insulin resistance, and metabolic syndrome.<sup>7</sup> That means that these

young lives might be shortened and compromised due to liver disease that will haunt them for the rest of their lives.

With no approved pharmacological treatments, lifestyle and dietary therapies remain the only hope for stemming the tide of NAFLD in children, adolescents, and adults.<sup>7,8</sup>

Fortunately, compounds like **silymarin** found in the **milk thistle** plant have undergone extensive research for their ability to support liver health. A growing list of studies shows the ability of silymarin to protect against damage inflicted by **nonalcoholic fatty liver disease (NAFLD)**.

**Silymarin** has even been found to have the potential to reverse the dangerous progression of NAFLD that leads directly to **liver fibrosis** that destroys most of the liver's natural functions.



## Milk Thistle Extract Prevents And Reverses Liver Disease

**Nonalcoholic fatty liver disease** (NAFLD) is caused by the excess accumulation of fat in the liver.

It currently affects a staggering **one in three** Americans and can lead to liver fibrosis, cirrhosis, and liver failure, while sharply raising the risk of liver cancer.<sup>1,9-11</sup>

Due to the increasing prevalence and severity of fatty liver disease, its treatment should be an urgent priority in modern American healthcare. Yet surprisingly little attention is being given to the prevention of liver disease. Unfortunately, there are no good treatments for liver disease once it has become established. Physicians rarely focus on liver health except in advanced cases.

Liver disease is a major cause of disability and death worldwide, yet it often remains underdiagnosed and underinvestigated.<sup>12</sup> Similar to other degenerative diseases, much of the damage and destruction that contributes to liver disease is related to **inflammatory** and **oxidative** changes in the liver.<sup>13-15</sup>

That is precisely what makes **silymarin** such a potent agent for liver protection. Silymarin has a broad spectrum of anti-inflammatory,<sup>16,17</sup> anticancer, and specific liver-protective effects that have been shown to guard against the broad spectrum of threats to the liver and other tissues.<sup>18-22</sup>

Laboratory studies have uncovered numerous ways in which silymarin and its active constituent **silibinin** help protect the liver, including boosting the liver cells' own natural protective processes, while simultaneously decreasing a number of inflammatory mediators (these include iNOS, tumor necrosis factor alpha,<sup>23,24</sup> interleukins-6<sup>25</sup> and 1 beta,<sup>26,27</sup> cyclooxygenase-2 [COX-2], and nuclear factor kappa-beta [NF-kappaB]).<sup>28,29</sup>

These beneficial properties are believed to be responsible for silymarin's ability to prevent, and in some cases reverse, liver disease—all of which represent inflammation-induced accelerated aging.<sup>30,31</sup>

### The Real/ Leading Cause Of Liver Damage

Liver disease was historically considered to be the result of excessive alcohol consumption. However, the single leading cause of liver disease is the direct result of excess weight.<sup>3,4,12,32</sup> **Nonalcoholic fatty liver disease** (NAFLD) is closely associated with obesity and high blood sugar.<sup>1</sup>

NAFLD is defined by the presence of excessive fat stores in liver cells, which normally contain very little fat. Between **30 to 50%** of adults in developed countries suffer from NAFLD—and most don't know it.<sup>1,9-11</sup>

This is worrisome, since up to one-third of NAFLD patients will progress to a more severe condition known



as **nonalcoholic steatohepatitis**, or NASH.<sup>1,9,10</sup> NASH is inflammation of the liver caused by excess fat. This type of liver injury leads directly to **liver fibrosis**, or scarring, which destroys most of the liver's natural functions.<sup>1,33</sup> We also know that inflammation in general promotes cancer, which helps explain why NASH is now considered a major risk factor for **hepatocellular carcinoma**, the most common form of primary liver cancer.<sup>1,15,34</sup>

Fortunately, silymarin's anti-inflammatory action makes it especially powerful against NAFLD, as evidenced from a broad range of laboratory and clinical studies.

### Animal Studies

In a study published in *International Journal of Molecular Medicine*, silymarin treatment of obese, diabetic rats was shown to help prevent **liver fibrosis** by decreasing activation of **stellate cells**. These cells produce **fibrosis** (scarring of the liver) thereby indicating the beginning of liver failure.<sup>35,36</sup> These antifibrotic effects are attributed to the ability of **silymarin** to disrupt inflammatory cytokines—particularly **TNF-alpha**, which is known to drive the progression of NAFLD to the more deadly NASH.<sup>36-38</sup>

Another study found that when rats fed a high-fat diet to develop NAFLD were supplemented with **silibinin**, they experienced a significant reduction in the features associated with NAFLD, including microscopic changes to the liver, insulin resistance, and dysfunction of glucose metabolism.<sup>19</sup>

In the same study, researchers incubated liver cells with fat to encourage them to fill with lipids (simulating NAFLD). Researchers found that the addition of **silibinin** to the culture reduced lipid accumulation, restored cells' viability, and lowered production of the protein **resistin**, a marker of insulin resistance, which is significantly associated with NAFLD and metabolic syndrome.

Other animal studies have shown a reduction in mean liver weight (a measure of fat accumulation) in mice whose NAFLD had progressed to dangerous NASH, demonstrating that milk thistle extracts can in fact reverse this deadly progression.<sup>39</sup>

### Human Studies

Human studies of **silymarin** in NAFLD are equally encouraging. The first such study, published just three years ago, examined vitamin E along with a complex called **silybin phytosome complex**, which consists of silybin plus **phosphatidylcholine**, a substance that enhances bioavailability. After just 12 months, the patients experienced significant improvements in markers of liver cell damage, glucose tolerance, and the microscopic structure of the liver; no such changes were seen in placebo recipients.<sup>8</sup>

Surprisingly, the **body mass index** (BMI) of the patients in the study, which had previously been ele-

vated, normalized in **15%** of treated subjects, but only in **2%** of placebo patients. In addition, when patients with **hepatitis C** infection were treated with the supplement, they showed improvement in markers of fibrosis, while no such change was seen in hepatitis C patients who received the placebo, a demonstration of the multiple targets on which silymarin and silybin can act.

In a similar study, when 72 patients with NAFLD took a supplement containing silymarin, blood markers of liver damage fell significantly by about **45%** in just *three months*.<sup>40</sup> During that time period, researchers also noted significant improvement in the ultrasound appearance of the liver before and after treatment.

But one of the most exciting studies came in late **2014**, when researchers published the first demonstration in humans of silymarin's potential to reverse NASH, the dangerous progression of NAFLD.<sup>41</sup>



MILK THISTLE FLOWER (SILIBUM MARIANUM)

### What You Need To Know

#### Milk Thistle Extract Provides Liver Protection

- Threats to liver function include weight gain, poor blood sugar control, metabolic syndrome, toxins in food and the environment, and several dangerous viruses.
- One of the leading causes of liver disease today is nonalcoholic fatty liver disease (NAFLD), which while producing no symptoms, can progress to liver fibrosis, cirrhosis, and premature death.
- No drug is available to cure or even adequately treat liver disease once it develops.
- Silymarin, a flavonoid-rich extract of milk thistle plant seeds, has specific liver-protective properties.
- Studies show that silymarin fights oxidative damage and inflammation, with real impact on prevention of NAFLD and other liver diseases.
- Silymarin also directly blocks hepatitis C virus infection and may prevent virus replication.
- Early results show potential cancer-chemopreventive effects of silymarin in lab studies.
- Daily supplementation with silymarin from milk thistle might be a great way to maintain liver health and resistance to accelerated aging from metabolic syndrome, diabetes, and obesity.



## NAFLD Emerges As A Pediatric Health Threat

A generation ago, most pediatricians were only vaguely familiar with the concepts of type II diabetes and nonalcoholic fatty liver disease (NAFLD). Children and adolescents were generally thought not to suffer from these “age-related” conditions.

Today, however, it is clear that all of these metabolic disruptions form part of the metabolic syndrome (obesity, lipid disturbances, elevated blood sugar, and hypertension), which leads directly to cardiovascular,<sup>69</sup> neurodegenerative,<sup>70,71</sup> and malignant diseases,<sup>72,73</sup> regardless of age. In other words, these conditions are not so much “age-related” as they are “age-accelerating.”<sup>74,75</sup>

These changes are being brought to light by a host of alarming studies revealing a rapidly growing suspected prevalence of NAFLD in adolescents and even young children. In the period between 1988 and 1994, NAFLD prevalence was **3.9%** in those aged 12-19 years; by 2007-2010, prevalence was **10.7%** with that dramatic increase evenly distributed among all racial and ethnic groups and both sexes.<sup>6</sup> Forty-eight percent of obese teen boys are estimated to have NAFLD,<sup>6</sup> and NAFLD is now the most common cause of chronic liver disease in children and adolescents in the US, strongly associated with childhood obesity, insulin resistance, and metabolic syndrome.<sup>7</sup>

With no approved pharmacological treatments, lifestyle and dietary therapies remain the only hope for stemming the tide of NAFLD in children, adolescents, and adults.<sup>7,8</sup>

In addition, studies have shown that supplementation with the milk thistle extract **silymarin** can protect against liver damage from NAFLD.<sup>39,76</sup>

For the study, patients with existing NASH supplemented with **210 mg** of silymarin daily and underwent blood tests before and after treatment. After eight weeks, supplemented patients had a **58% reduction** in the liver enzyme ALT, while placebo recipients experienced a **38% reduction**, a significant difference; similar decreases were found in other liver enzyme markers.

(**Note:** Placebo patients often exhibit some benefit when participating in clinical studies because they initiate changes on their own, such as losing weight, due to the education they receive from the paperwork they sign and the physician interactions that occur. In other words, patients are told their poor lifestyle choices have created a life-threatening condition and many instinctively take steps to correct their problem.)



Given the lack of drug options for NAFLD, scientists have also attempted to evaluate drugs used in diabetes as a means of controlling the progress of the disorder. In one such study, silymarin proved superior to two such drugs (metformin and pioglitazone) in reducing blood markers of liver damage.<sup>34</sup>

## Obesity And Diabetes

In addition to having a direct impact on liver disease, silymarin has also been found to help battle conditions that can contribute to liver disease, including obesity and diabetes.

Underlying the epidemic of NAFLD in America is the epidemic of **obesity**, which is so closely related to development of type II diabetes<sup>42</sup> that the two are commonly referred to as a single problem: **diabetes**.<sup>43</sup> Both diabetes and obesity contribute to **metabolic syndrome**, which accelerates aging by contributing to premature cardiovascular, neurodegenerative, and malignant diseases.<sup>44-47</sup>

Fortunately, silymarin is showing tremendous promise in protecting the liver against the age-accelerating impact of diabetes and metabolic syndrome. Studies of obese and/or diabetic animals show that silymarin and silibinin lower cellular and circulating levels of oxidative stress and inflammatory markers. These actions result in greater responsiveness to insulin, better glucose control, diminished fat production, better endothelial function (a risk factor for cardiovascular disease), and improved cognition,<sup>48,49</sup> when compared with untreated animals.<sup>22,50-54</sup>

But in one of the most remarkable animal studies to date, researchers found that silymarin can induce a *true reversal* of **diabetic neuropathy**, which is painful nerve damage caused by chronic blood sugar elevations.<sup>55</sup> This is an especially exciting development since diabetic neuropathy has so far proved resistant to conventional drug treatment.

Diabetes also damages kidney tissue and leads to impaired kidney function, a condition called **diabetic nephropathy**, which is a leading cause of kidney failure. In rat studies, silymarin treatment has been found to markedly restore kidney tissue damaged by diabetes and significantly improve impaired kidney function, largely by restoring diminished levels of natural enzyme systems.<sup>21,54</sup>

### Studies In Human Diabetics Reinforce Lab Findings

Studies published between 1997 and 2007 found that diabetic subjects taking **600 mg** a day of silymarin experienced numerous benefits, including significant decreases in fasting blood sugar, mean daily blood sugar, sugar in the urine, and long-term measures of glucose exposure (such as hemoglobin A1c), as well as in total insulin requirements in insulin-using patients.<sup>56-58</sup> They also experienced improved liver function, as shown by decreases in triglycerides, total and LDL (“bad”) cholesterol, and enzyme markers of liver damage.<sup>57</sup>

Studies have also found that silymarin can help enhance the benefits of standard diabetic drugs. For

example, in patients whose diabetes was poorly controlled on the prescription drug *glibenclamide*, the addition of **200 mg** a day of silymarin for 120 days produced improvements over the drug alone, while also significantly reducing body mass index (BMI).<sup>58</sup> And another study found that when silymarin was added to standard drugs for diabetic nephropathy (kidney disease), patients experienced improved urinary markers of kidney function, inflammation, and oxidative damage beyond that produced by the drug itself.<sup>59</sup>

### Silymarin Shows Early Promise Against Many Cancer Types

Key events in the development of cancer very often include **oxidative damage** to cells with resultant inflammation, followed by an accelerated rate of cell replication and a resistance to normal cell death (apoptosis).

These features of cancer represent target areas that might be vulnerable to treatment with silymarin. There is growing interest among oncologists to capitalize on the supplement’s strong safety record and evidence of effectiveness in laboratory studies.

### Enhancing Silymarin With Phospholipids

Silymarin holds tremendous potential for treating and preventing chronic liver diseases. Unfortunately, the extract alone is poorly soluble in fat, which slows its transport across lipid-rich cell membranes and may diminish its availability to the body (bioavailability) following oral dosing.<sup>77</sup>

This problem can be readily overcome by allowing the silybin components to form complexes with phospholipids, which are detergent-like molecules that facilitate the mixing of water- and fat-soluble compounds.<sup>8,77-79</sup>

Studies in both animals and humans show that a complex of silybin plus the phospholipid **phosphatidylcholine** produces greater oral bioavailability than pure silybin and silymarin.<sup>78,79</sup> The impact of this **phytosome** complex was demonstrated quantitatively in dogs, which showed increases in the maximum concentration of silybin by **2.7-fold** and in the total 24-hour accumulation of silybin by **3-fold**, and shortened the time to achieve maximum concentration to **60%** of that of silybin.<sup>80</sup>





While no clinical data on silymarin as a cancer-preventive agent are yet available, the accumulation of basic laboratory findings is compelling and provides hope for the near future. For instance:

- Laboratory studies show that silymarin blocks proliferation in colon, lung, cervical, prostate, and ovarian cancer cell lines in culture.<sup>60-64</sup>
- Silymarin has been found to have a synergistic effect with known cancer chemotherapy drugs.<sup>60</sup>
- Silymarin blocks the master inflammation-generating complex NF-kappaB, decreasing further signaling that is regulated by this inflammatory molecule.<sup>61</sup>
- Silymarin restores cancer cells' ability to die by apoptosis, which allows the body's own scavenging and surveillance systems to clean up and prevent further tumor growth.<sup>61-63</sup>
- Silymarin can inhibit the invasiveness of certain types of cancer cells, a major step in limiting the severity of a malignancy.<sup>62,65</sup>

Excitingly, when silibinin was orally administered in mice bearing human lung cancer grafts, it sharply decreased the overall volumes of the resulting tumors, even in tumors known to be resistant to standard chemotherapy.<sup>66</sup> Researchers found that silibinin prevented the transition from well-differentiated *epithelial* cells

## Why The Liver Is So Important

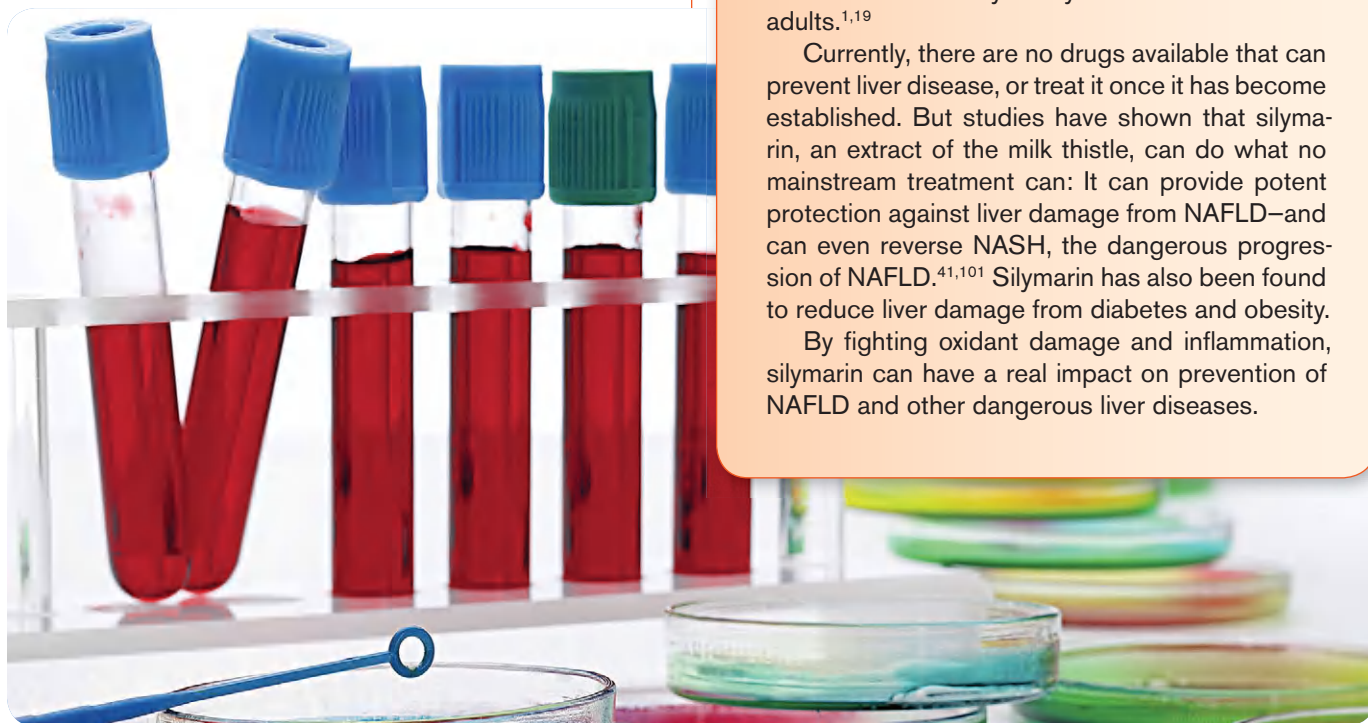
It is impossible to overstate the liver's importance for health and longevity. Your liver processes the nutrients you need to survive and thrive from the food you eat. It manufactures scores of enzymes and other factors vital to blood clotting,<sup>81</sup> to the immune system,<sup>82</sup> and to metabolic control of blood sugar<sup>83</sup> and lipid levels.<sup>84</sup> It makes bile,<sup>85</sup> which helps you digest and absorb fats. It stores sugar safely, releasing it as required to sustain energy requirements.<sup>85</sup> It detoxifies the majority of chemical toxins we ingest, including alcohol<sup>86</sup> and most drugs.<sup>87</sup> It stores minerals, such as iron and copper, as well as certain vitamins.<sup>88</sup>

Unfortunately, your liver is under constant attack, especially from natural and artificial toxins.<sup>89-91</sup> Making matters worse, it is host to several potentially fatal viral infections, and also to **hepatocellular carcinoma**, a leading cause of cancer deaths.<sup>15,92-96</sup>

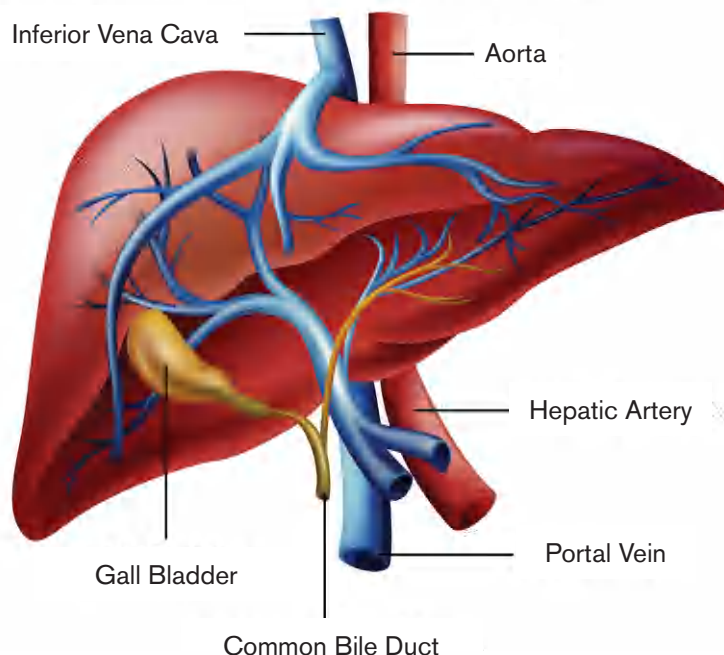
Because **100%** of blood from the digestive tract goes straight to the liver for further processing, the liver is constantly exposed to high levels of fats, sugars, and potentially damaging chemicals from food.<sup>88,97,98</sup> It is highly sensitive to fluctuations in blood sugar<sup>99,100</sup> and especially to the effects of obesity, which conspire to produce a chronic liver condition called nonalcoholic fatty liver disease, a condition suffered by nearly one-third of American adults.<sup>1,19</sup>

Currently, there are no drugs available that can prevent liver disease, or treat it once it has become established. But studies have shown that silymarin, an extract of the milk thistle, can do what no mainstream treatment can: It can provide potent protection against liver damage from NAFLD—and can even reverse NASH, the dangerous progression of NAFLD.<sup>41,101</sup> Silymarin has also been found to reduce liver damage from diabetes and obesity.

By fighting oxidant damage and inflammation, silymarin can have a real impact on prevention of NAFLD and other dangerous liver diseases.



## Human Liver Anatomy



conditions. While weight loss and exercise are important, you can further tip the odds in your favor by supplementing with **silymarin**, the standardized extract of the milk thistle seed.

Studies show that silymarin and its active constituent **silibinin** provide potent protection against liver damage from NAFLD, in at least one case, genuinely reversing some of the more ominous findings. Silymarin has also been found to reduce liver damage from diabetes and obesity.

Finally, there is growing evidence that silymarin and its constituents have powerful anticancer capabilities that work on multiple cellular targets.

Silymarin is currently the best-studied and most effective means of protecting against chronic liver disease. ●

to more motile, and potentially invasive, *mesenchymal* cells.<sup>67,68</sup> This *epithelial-to-mesenchymal transition* is a requirement for many tumor types to develop and grow, so blocking it is a major advance.<sup>66</sup>

Human studies of silymarin and cancer are in their infancy, but dose-finding studies have revealed safety and tolerability of the supplement while other studies show promise with encapsulating silymarin into tiny nanoparticles to markedly enhance its bioavailability to levels required for cancer treatment.<sup>61,64</sup>

### Summary

The epidemic of obesity and the metabolic syndrome are responsible for a growing threat to health and longevity: liver disease.

More than **30%** of Americans have dangerous accumulations of fat in their liver, a condition called **nonalcoholic fatty liver disease** (NAFLD). This condition is especially dangerous because it is often without symptoms—meaning most people are unaware they have this condition. This “silent” disease leads to potentially fatal liver conditions, including **nonalcoholic steatohepatitis** (NASH) and ultimately **fibrosis, cirrhosis, and liver failure**.

No medications are approved for prevention, or even treatment, of most liver disorders. That means that lifestyle and dietary changes provide the best hope for avoiding these debilitating and deadly

If you have any questions on the scientific content of this article, please call a **Life Extension®** Health Advisor at 1-866-864-3027.

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## How To Boost NAD+ Levels Within Your Cells

Newly patented **nicotinamide riboside** increases cellular levels of **NAD+** in the body.<sup>7,8</sup>

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**Nicotinamide riboside** represents an innovative advance to combat aging that functions via unique mechanisms not found in typical dietary supplements. It has emerged as a front-line weapon in **Life Extension**®'s ongoing war against premature aging.

The name of this new **nicotinamide riboside** formulation is **NAD+ Cell Regenerator**™.

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**Nicotinamide riboside** has been documented to help replenish cellular **NAD+** and in the process:

- Promote sirtuin (SIRT1 and SIRT3) gene activation,<sup>6</sup>
- Enhance growth and efficiency of mitochondria—supporting energy levels and physical performance,<sup>6</sup>
- Favorably modulate metabolism,<sup>6</sup>
- Contribute to neuronal health—supporting cognitive function during aging,<sup>9-11</sup>
- Promote insulin activity—supporting healthy blood sugar in those within the normal range.<sup>6</sup>

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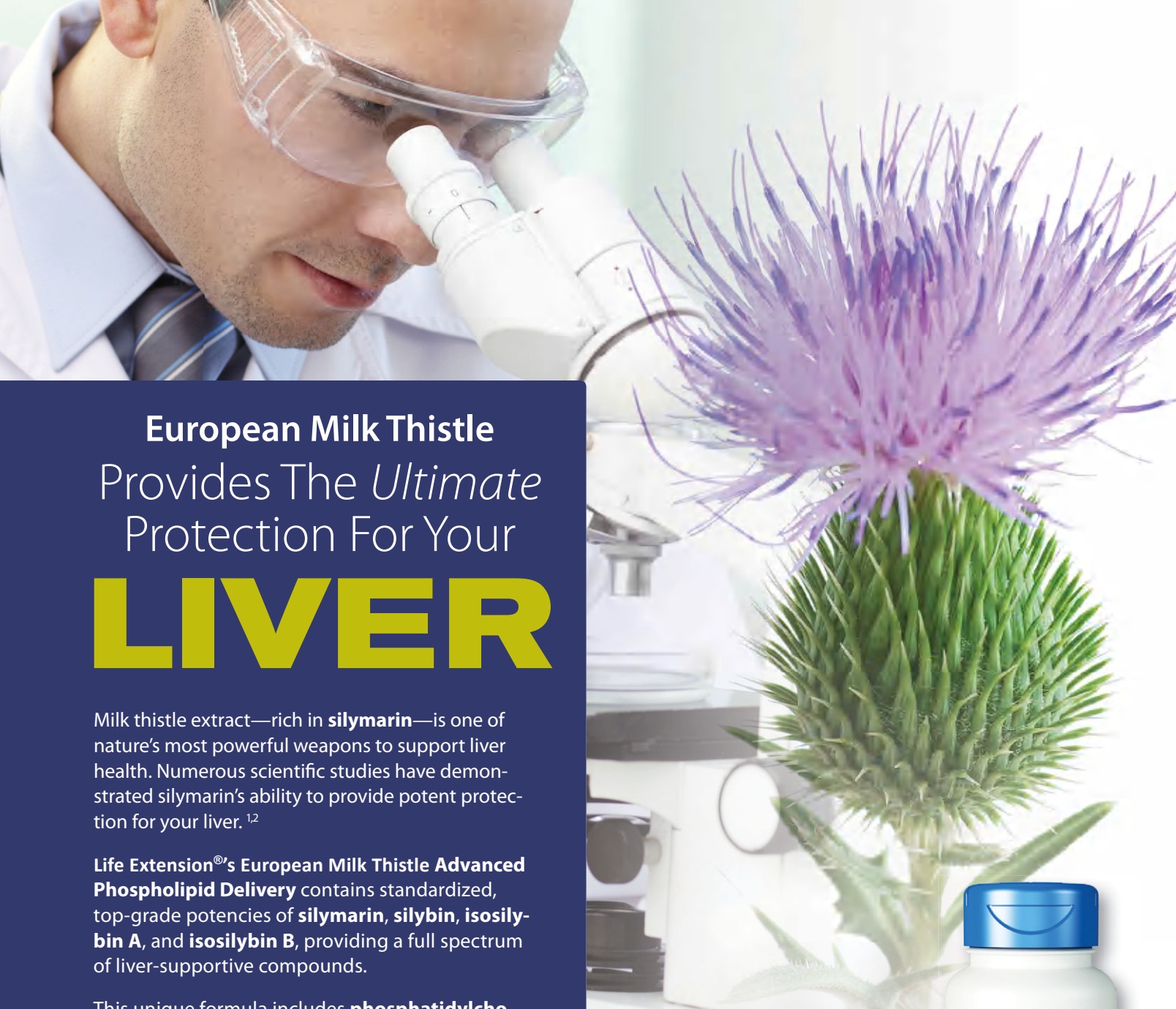
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#### References:

1. *Mol Nutr Food Res*. 2009 Apr;53(4):460-6.
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