

BioLiver

BioLiver is an advanced micronutrient blend having vitamins, minerals and amino acids with plant extracts of artichoke, milk thistle, nettle leaves and cranberry for nutritional support to help maintain normal liver function and digestion.

Liver

Liver is a vital organ in the human body. It performs an array of functions that help support metabolism, immunity, digestion, detoxification, vitamin storage among other functions. It comprises around 2% of an adult's body weight. The liver is a unique organ due to its dual blood supply from the portal vein (approximately 75%) and the hepatic artery (approximately 25%). It is intertwined with nearly every system in the body, hence, it is prone to a variety of pathologies¹.

The liver, a life-essential organ, has an extraordinary reserve capacity and potential, as well as regenerative capabilities².

Liver Structure¹

The liver is surrounded by connective tissue, designated as Glisson's capsule. It is composed of polygonal lobules separated by connective tissue. It is hexagonal and has a portal triad (portal vein, hepatic artery, bile duct) at each corner. The foundation of the lobule is composed of hepatocytes, which have physiologically distinct apical and basolateral membranes. Based on function and perfusion, hepatocytes are divided into 3 zones.

Zone I — periportal region, highly perfused and first to regenerate due to their proximity to oxygenated blood and nutrients.

Zone II — pericentral region of the hepatocytes.

Zone III — lowest perfusion and plays a role in detoxification, biotransformation of drugs.

Liver Ailments^{3, 4}

Liver disease accounts for approximately 2 million deaths per year worldwide, spread between cirrhosis, viral hepatitis and hepatocellular carcinoma disorders. Following are different types of diseases of the liver:

Cirrhosis sees scar tissue replace liver cells in a process known as fibrosis. This condition can be caused by a number of factors, including toxins, alcohol, and hepatitis. Eventually, fibrosis can lead to liver failure as the functionality of the liver cells is destroyed.

Hepatitis is the name given to a general infection of the liver, and viruses, toxins, or an autoimmune response can cause it. It is characterized by an inflamed liver. In many cases, the liver can heal itself, but liver failure can occur in severe cases.

Alcoholic liver disease caused due to drinking too much alcohol over long periods of time which can cause liver damage. It is the most common cause of cirrhosis in the world.

Fatty liver disease usually occurs alongside obesity or alcohol abuse. In fatty liver disease, vacuoles of fat build up in the liver cells. If it is not caused by alcohol abuse, the condition is called non-alcoholic fatty liver disease (NAFLD).

Liver cancer most common types of liver cancer are hepatocellular carcinoma and cholangiocarcinoma. The leading causes are alcohol and hepatitis. It is the sixth most common form of cancer and the second most frequent cause of cancer death.

Why BioLiver?

A blend of 4 botanicals - **Milk Thistle, Artichoke, Nettle Leaves, and Cranberry Extract** – with Phosphatidylserine phospholipid, L-Choline and essential nutrients like, L-Methionine & L-Glycine amino Acid, Zinc, Vitamin C, Vitamin D3, Vitamin B2 and Vitamin B12.

Milk thistle⁵:

Milk thistle is a popular natural herb which provides the active flavonoid silymarin. Silymarin has shown promising results contributing towards detoxifying potential of the liver. It has been used traditionally for many years and has an excellent safety profile.

Artichoke⁶:

Artichoke is another species of thistle, which contains flavonoids like luteolin and apigenin. Artichoke also supports normal blood lipid (fat) levels and normal liver function. It may help protect against free radical damage.

Nettle leaves⁷:

Nettle leaves provided silica which promotes supple and healthy connective tissues.

Phosphatidylserine:

Phosphatidylserine is an important chemical with widespread functions in the body. It is part of the cell structure and is key in the maintenance of cellular function in body organs.

L-Choline:

Choline is a vital amino acid for liver health. It has been recognized as contributing to the maintenance of normal liver function and lipid metabolism by European Food Safety Authority.

Vitamin B2 & Vitamin B12:

Vitamin B2 and Vitamin B12 contribute to normal energy-yielding metabolism, normal red blood cell formation, the reduction of tiredness and fatigue and have a role in the process of cell division. Vitamin B12 also contributes to the normal function of the immune system. Both the vitamins have been authorized by European Food Safety Authority for its essential role in human health.

Vitamin D3:

It ensures normal functioning of immune system while maintaining overall strength of muscles and bones in humans. It has been authorised by European Food Safety Authority for its essential role in human immunity.

Vitamin C:

Vitamin C acts as an antioxidant, neutralising free radicals to protect cells from oxidative stress. It is also necessary for the function of several enzymes and it increases the absorption of iron.

Zinc: Zinc is recognized as an important mineral for male health by European Food Safety Authority, as it contributes to normal fertility and reproduction and maintenance of normal testosterone levels.

How to Use:

1 Tablet daily with water during meal or as directed by Physician.

Advisory: Food supplements must not be used to replace a varied and balanced diet and healthy lifestyle. If you are taking prescription medication or under medical supervision, please consult a doctor or healthcare professional prior to taking any supplements. Discontinue use and consult doctor if adverse reactions occur. Do not exceed the recommended intake.

Storage: Store below 25°C in a dry place. Keep out of reach of children. Do not use if seal is broken.

Manufactured in the UK for:

Bioreva Sciences Limited

Block 1, Blanchardstown Corporate Park
Ballycoolin Road Blanchardstown, Dublin 15
Ireland D15 AKK1

To explore our Concept, the minds behind BioNutrica, and be part of our journey of building a healthier self - visit us on www.bionutrica.uk, write us on info@bionutrica.uk, or just follow us on Instagram @bionutricaIE

References

¹<https://www.ncbi.nlm.nih.gov/books/NBK535438/>

²Albert L. Jones, et al. Current concepts of liver structure as related to function. *Gastroenterology*. 73:833-851, 1977.

³Asrani SK, et al. Burden of liver diseases in the world. *J Hepatol*. 2019 Jan;70(1):151-171.

⁴<https://www.medicalnewstoday.com/articles/305075#diseases>

⁵Ball KR, et al. A review of Silybum marianum (milk thistle) as a treatment for alcoholic liver disease. *J Clin Gastroenterol*. 2005 Jul;39(6):520-8.

⁶Joy JF, Haber SL. Clinical uses of artichoke leaf extract. *Am J Health-Syst Pharm* 2007;64: 1904-9.

⁷Dorota Kregiel, et al. Urtica spp.: Ordinary Plants with Extraordinary Properties. *Molecules* 2018, 23, 1664.

⁸Hisano M et al. Cranberries and lower urinary tract infection prevention. *Clinics* 2012;67(6):661-667.