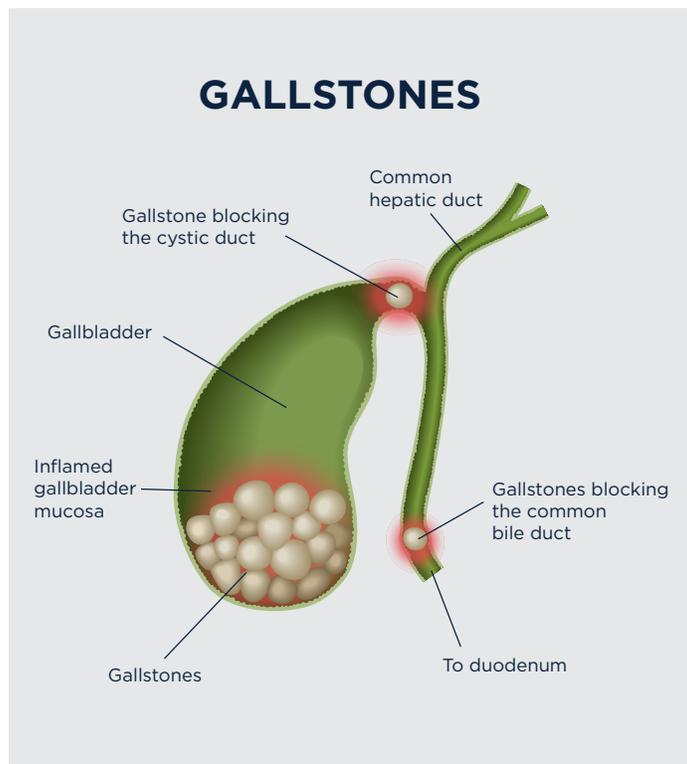


Gallstones and Cholestasis Protocol

Clinical Protocol To Support Patients With Gallstones And Cholestasis*



Gallstones are masses found in the biliary tract or gallbladder generally caused by abnormally high levels of bilirubin or cholesterol in bile.^{1,2} The majority (more than 90%) of gallstones are cholesterol gallstones, which are composed mainly of cholesterol.¹ Cholestasis is the reduction or stoppage of bile flow due to mechanical obstruction of the biliary tract or dysfunction in the processes of forming or excreting bile. It may increase the risk of fat-soluble vitamin deficiency and decrease overall quality of life.³

Risk factors for developing gallstones include hyperinsulinemia, obesity, insulin resistance, type 2 diabetes, rapid weight loss, liver disease, Crohn's disease, certain medications, pregnancy, and genetics.^{1,4} Cholesterol gallstones form when the physical-chemical balance of cholesterol solubility is disturbed in the bile.¹ Pigment gallstones, or those made from bilirubin, occur due to abnormalities in bilirubin metabolism.² Risk factors for cholestasis include certain medications, pregnancy, liver disease, and genetics.⁵⁻⁷

Diagnosis for gallstones and cholestasis generally occurs through a combination of the clinical assessments of symptoms and imaging, including the use of an abdominal ultrasound.¹ Treatment for gallstones may include medication, such as gallstone-dissolving agents, diet and lifestyle modification, and surgery, including laparoscopic cholecystectomy.^{1,2,4} This clinical protocol is designed to support bile metabolism and flow and gallbladder health.*

Diagnostic Biomarkers and Clinical Indicators of Gallstones and Cholestasis

- Abdominal ultrasound¹
- Computed tomography (CT)²
- Magnetic resonance cholangiopancreatography (MRCP)²
- Cholescintigraphy²
- Endoscopic retrograde cholangiography (ERCP)¹

Therapeutic Diet and Nutritional Considerations

- Advise patients on consuming diets rich in fiber, vitamin C, and calcium, as these support the biliary concentration of hydrophobic lithogenic bile acids, which may affect the chance of gallstone formation^{1,2,8}
- Recommend an eating pattern rich in fruits, vegetables, legumes, nuts, and seeds, as these have been shown to protect against gallstone disease in addition to a reduction in the risk of cholecystectomy^{1,2,8-10}
- Counsel patients on avoiding high carbohydrate and fructose intake, as diets high in these compounds have been associated with an increased risk of gallstones and liver disease⁹

Lifestyle Intervention

- Recommend patients incorporate exercise and physical activity, as it may help support bile flow, promote gallbladder emptying and motility, and mitigate additional risk factors for gallstones^{4,11-13}
- Counsel patients on sleep hygiene and treat any sleep disorders, especially obstructive sleep apnea (OSA), as studies have found an association between both circadian disruption and OSA and gallstones^{14,15}
- Advise patients on performing daily abdominal self-massage, as this may help stimulate bile flow and prevent gallstones^{16,17}



Supplement Protocol

Primary Support:



LV-GB Complex™

Dose	1 capsule 3 times a day with meals
Duration	Ongoing as needed
Formula Highlights	LV-GB Complex™ is a comprehensive formula designed to support bile flow for the normal processing and elimination of toxins through the specific combination of nutrients and herbs in this formula. By supporting liver and gallbladder function, LV-GB Complex™ assists with the elimination of fatty substances from the liver, and with the digestion and assimilation of fats and fat-soluble vitamins.*

Phosphatidylcholine

Dose	1 to 2 softgels per day
Duration	Ongoing as needed
Formula Highlights	Phosphatidylcholine is excellent for emulsifying fat, making this nutrient extremely valuable for liver health. It is ideal for supporting the absorption of all fat-soluble nutrients.*

Pancreatic Enzymes Plus

Dose	1 capsule 3 times a day with meals
Duration	Ongoing as needed
Formula Highlights	Pancreatic Enzymes Plus is a porcine-derived pancreatic enzyme blend designed to support healthy digestion.* This product is specifically formulated to aid in the digestion of protein, carbohydrates, and fats. The synergistic actions of pancreatic amylase, protease, and lipase, along with bromelain, provide enhanced digestion of proteins, fats, and carbohydrates. Ox bile is included to help support the emulsification of fats. The enteric coating protects the enzymes from being denatured by stomach acid, preserving their activity for the duodenum, where pancreatic enzymes are normally released and activated.*

For a list of references cited in this document, please visit:

<https://www.designsforhealth.com/api/library-assets/literature-reference---gallstones-and-cholestasis-protocol-references>

Dosing recommendations are given for typical use based on an average 150 pound healthy adult. Health-care practitioners are encouraged to use clinical judgement with case-specific dosing based on intended goals, subject body weight, medical history, and concomitant medication and supplement usage. Any product containing botanical substances has the potential for causing individual sensitivities, appropriate monitoring, including liver function tests (LFT) is recommended.

For considerations regarding herb-drug and nutrient-drug interactions, please refer to reliable, evidence-based resources such as the Natural Medicine Database or Stargrove MB, Treasure J, McKee DL. *Herb, Nutrient, and Drug Interactions: Clinical Implications and Therapeutic Strategies*. St. Louis, MO: Mosby-Elsevier; 2008.

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*These statements have not been evaluated by the Food and Drug Administration. These products are not intended to diagnose, treat, cure, or prevent any disease.