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| This abstract supports the use of d-limonene, the primary constituent of the citrus essential oils (i.e., lemon, orange, grapefruit, lime), for heartburn and gastric reflux, to help naturally breakdown gallstones, and prevent cancer, including breast cancer and colo-rectal cancer.  **D-Limonene: safety and clinical applications.**  Source: Altern Med Rev. 2007 Sep;12(3):259-64.  D-limonene is one of the most common terpenes in nature. It is a major constituent in several citrus oils (orange, lemon, mandarin, lime, and grapefruit). D-limonene is listed in the Code of Federal Regulations as generally recognized as safe (GRAS)  Being a solvent of cholesterol, d-limonene has been used clinically to dissolve cholesterol-containing gallstones. Because of its gastric acid neutralizing effect and its support of normal peristalsis, it has also been used for relief of heartburn and gastroesophageal reflux (GERD). D-limonene has well-established chemopreventive activity against many types of cancer. Evidence from a phase I clinical trial demonstrated a partial response in a patient with breast cancer and stable disease for more than six months in three patients with colorectal cancer.    --------------------------------------------------------------------------------------------------  A large survey performed by the National Heartburn Alliance in 2000 estimated that 60 million Americans have GERD symptoms at least once per month, and 25 million adults have daily symptoms.  This survey revealed that 95% of these individuals have had symptoms for more than one year, and 54% have had symptoms for more than five years. Forty percent of these individuals reported symptoms two to four times per week, and 33% reported symptoms five times per week or more.  Pharmaceutical acid blockers are usually the initial recommendation for both diagnosis and treatment. Long-term therapy with acid blockers has not been well-studied.  Some research has indicated that nutrient deficiencies may arise with these treatments. Research has also suggested that long-term therapy with both PPI and H2 blockers increases the risk of vitamin B12 deficiency significantly.  There is also evidence that long-term use of PPIs increases the risk of hip fracture significantly. |