

<p>Introduction</p>	<p>Brand Name: OXALO [Pre-Probiotic] Capsules</p> <p>Therapeutic Category: Prevention of Stone Formation</p> <p>Urinary tract stone disease has been a part of the human condition for millennia; in fact, bladder and kidney stones have even been found in Egyptian mummies. Some of the earliest recorded medical texts and figures depict the treatment of urinary tract stone disease. Most of the medicine departments manage patients with acute renal colic every day. The mainstay of the acute phase of treatment being NSAIDs for the management of pain, antibiotics for either prevention or treatment of infections and alkalinizers. In the later part of the treatment, either conservative management with dietary restrictions, followed by ESWL [Extracorporeal Shock Wave Lithotripsy] or other surgical procedures deemed fit by the healthcare provider. Recurrent obstruction, especially when associated with infection and tubular epithelial or renal interstitial cell damage from microcrystals, may activate the fibrogenic cascade, which is mainly responsible for the actual loss of functional renal parenchyma, and may over a period of time if untreated lead to renal damage.</p> <p>Post surgery despite the best dietary restrictions, with increased fluid consumption, the recurrence of renal calculi and ureter stones are still a large problem. Although a number of ayurvedic, homoepathic and other preparations are available, cure rates are low and recurrence rates are high.</p> <p>However, recent research results, published on an exciting and promising member of the probiotic family, Oxalobacter formigenes and other probiotic members added to this combination along with a pre-biotic have given beneficial results to individuals with a history of stone formation, along with the standard medical treatment and dietary restrictions. Although a number of other, dietary sources are responsible for stone formation, the oxalates are the biggest culprits that are derived from both endogenous and exogenous sources, much of it is excreted in the human urine in normal individuals. Hyperoxaluria, the clinical condition of stone formation, are of two types and can classified as:</p> <ol style="list-style-type: none"> 1. Primary Hyperoxaluria [genetic origin] & 2. Secondary Hyperoxaluria that result due to GI disturbances such as chronic diarrhea, malabsorption syndrome and the other major cause is dietary hyperoxaluria. <p>The other factors that also play a role in states of Hyperoxaluria are:</p> <ol style="list-style-type: none"> 1. Renal handling 2. Hepatic handling of Oxalate & 3. Gastrointestinal oxalate handling <p>Others may have a deficiency of Oxalobacter formigenes, an intestinal facultative anaerobic bacterium that naturally digests oxalate and converts it to a energy source for survival. Repeated and indiscriminate use of antibiotics, both prescription and self-medication such as Macrolides, Fluoroquinolones, and Tetracyclines, results in elimination of Oxalobacter formigenes, from the human GIT, resulting in states of hyperoxaluria and stone formation. Oxalobacter usually colonizes the intestinal tract at approximately age 3 years. Once lost, recolonizing Oxalobacter in the intestinal tract is very difficult.</p>
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<p>Oxalobacter Formigenes</p>	<p>Exogenous replacement using gut friendly oxalobacter formigenes, along with other compatible probiotics is the only alternative available for replacement of lost microbes, to prevent formation of stones.</p> <p>O formigenes is a facultative anaerobic bacteria normally found primarily in the colon, and it digests oxalate within the intestinal tract. The intestinal tract is normally colonized with Oxalobacter at approximately age 3 years. Oxalobacter loss is primarily due to prolonged or repeated antibiotic therapy. Fluoroquinolones, cephalosporins, tetracyclines, and macrolide preparations are particularly toxic to Oxalobacter bacteria. O formigenes is found in 70 - 80% of all adults but is missing or depleted in more than 60% of patients with hyperoxaluria. Patients with multiple episodes of calcium oxalate stone disease (4 or more episodes). are even less likely to have normal Oxalobacter colonies, with 80-90% demonstrating reduced colonization. Urinary oxalate excretion in patients with calcium oxalate stones who have lost their Oxalobacter colonies is typically 40% higher than in their counterparts with normal Oxalobacter levels.</p> <p>Oxalobacter formigenes is present in the human intestinal tract, where it lives at the expense of the transformation of oxalate to formate and carbon dioxide. It has been shown that the absence of O. formigenes is a risk factor for the formation of calcium oxalate stones (urolithiasis) and that calcium oxalate stone formers have a low rate of colonization with O. formigenes. Moreover, in various studies, the oral uptake of O. formigenes by human volunteers reduces the urinary oxalate excretion and results in oxalate-degrading activity in feces.</p>
<p>Lactobacillus acidophilus</p>	<p>Lactobacillus acidophilus is a species of gram positive bacteria in the genus Lactobacillus. L. acidophilus, ferments sugars into lactic acid and grows readily at rather low pH values (< pH 5.0). L. acidophilus occurs naturally in the human and animal gastrointestinal tract and mouth. Strains of L. acidophilus have been studied extensively for health effects. Many antibiotics kill the Lactobacillus species and need to be replaced, post antibiotic therapy for recolonization.</p> <p>L.acidophilus produces bacteriocin that is both antibacterial and inhibitory against certain yeasts and molds. It has been shown to improve bowel regularity. L. acidophilus has been associated with positive effects on the immune system such as increased cytokine, phagocytic activity and antibody production.</p>

<p>Bifidobacterium longum</p>	<p>Bifidobacterium longum is a gram-positive, catalase-negative, rod-shaped bacterium present in the human gastrointestinal tract and one of the 32 species that belong to the genus Bifidobacterium. It is a micro-aerotolerant anaerobe and considered to be one of the earliest colonizers of the gastrointestinal tract of infants. When grown on general anaerobic medium, B. longum forms white, glossy colonies with a convex shape. While B. longum is not significantly present in the adult gastrointestinal tract, it is considered part of the gut flora and its production of lactic acid is believed to prevent growth of pathogenic organisms. B. longum is non-pathogenic and is often added to food products for its beneficial probiotic health effects. B. longum is considered to be a scavenger, possessing multiple catabolic pathways to utilize a large variety of nutrients in order to increase its competitiveness among the gut flora. Up to 19 types of permease exist to transport various carbohydrates. Furthermore, B. longum possesses hydrolases, deaminases, and dehydratases in order to ferment amino acids.</p>
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	<p>The short chain fatty acids [SCFA's such as acetate, propionate and butyrate] produced by Bifidobacterium longum alter the pH of the colon, facilitating the excretion of nitrogenous wastes that are generated in the intestines.</p>
<p>Lactic Acid Bacillus</p>	<p>The lactic acid bacteria (LAB) are either rod shaped (bacillus) or spherical (coccus) and are characterized by an increased tolerance to acidity (low pH range). This aspect helps LAB to outcompete other bacteria in a natural fermentation, as they can withstand the increased acidity from organic acid production (e.g., lactic acid).</p> <p>It is well known that intake of Lactic acid bacteria effectively restores the disturbed microflora to normal ones. This raises the possibility that administration of lactic acid bacteria to uremic patients reduces the levels of uremic toxins by normalisation of the gut microflora.</p> <p>Lactic acid bacteria, suppresses the overgrowth of aerobic bacteria that suppresses the production of putrefactive substances and also suppresses the growth of aerobic bacteria [which have increased due to the diffusion of ammonical products into the intestines] by lowering the pH in the intestinal milieu by release of lactic acid.</p>
<p>Mechanism of Action</p>	<p>Growing evidence has assigned to oxalate a pivotal role in calcium nephrolithiasis pathophysiology. A better understanding of the mechanisms behind intestinal absorption and renal excretion has led to the identification of new treatments. Among these, diet and probiotics appear promising in terms of safety and rationale. The blend or composition of Oxalo has been chosen to achieve optimal reductions of oxalate levels based on scientific evidence.</p> <p>Oxalobacter formigenes are microbes that use oxalate in their metabolic activities. These bacteria colonize preferentially in the colon. Significantly, an almost doubled</p>

	<p>colonization rate has been reported in normal subjects compared to nephrolithiatic subjects; colonization with <i>O. formigenes</i> is associated with a 70% reduction of the risk of relapsing nephrolithiasis; and patients subjected to prolonged antibiotic therapy leading to a disequilibrium of the intestinal flora are at a greater risk of calcium oxalate nephrolithiasis. Besides <i>O. formigenes</i>, numerous other strains have been tested (for example, lactobacilli and bifi dobacteria) and published evidence supports the use of combi probiotics in combating hyperoxaluria.</p>
<p>Indications & Dosage</p>	<ol style="list-style-type: none"> 1. Assists in treatment of Hyperoxaluria 2. Prevent the incidence of Hyperoxaluria in patients suffering from complicated UTI 3. Use pre- and post- Lithotripsy and surgical procedures to prevent recurrence of stone formation <p>The suggested dosage is 1 Capsule BID before meals or as advised by the Physicans.</p>
<p>Safety</p>	<p>The biotherapeutic agent, OXALO contains probiotic agents that have been tested and are commonly found within the human body. They are safe with no untoward effects</p>
<p>Storage</p>	<p>As the capsules contain probiotics and a prebiotic, the capsules should not be exposed to direct sunlight or heat. The strips containing capsules must be kept out of reach of children.</p>

