



# Dietary management of urolithiasis in 2023: a comprehensive update

Kemal Sarica<sup>1</sup>

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As a benign painful condition, urolithiasis poses a huge challenge and burden to the health care system of all countries in the world particularly in those where the disease seems to be endemic. The prevalence of the pathology is steadily increasing worldwide and without any medical treatment, 5-year recurrence rate is high, ranging from 35 to 50% following initial stone episode. If not diagnosed and treated with appropriate medical and surgical approaches on time, the disease can cause irreversible morphological/ functional alterations in the affected kidneys. In other words, it may be well associated with increased risk of chronic and end stage kidney disease. Moreover, the disease is currently regarded as a systemic disorder associated with risk of coronary artery disease, hypertension, type 2 diabetes mellitus, and metabolic syndrome. The evident increase observed in the trend of stone disease may be due to changes in diet and lifestyle, obesity, diabetes, and global warming causing dehydration and high urinary concentration of stone-forming risk factors.

Formation of the stones within the urinary tract, is a multifactorial process for which metabolic abnormalities, genetic factors, anatomical and functional abnormalities along with nutritional status play a crucial role. Dietary content of stone forming cases has the potential of affecting the level of risk factors in urine and the supersaturation with the stone-forming salts responsible for stone formation.

Related with the impact of dietary content, there is a strong evidence indicating the established importance of adequate fluid intake as the major dietary risk factor for urolithiasis. Additionally other nutritional factors, including dietary protein, carbohydrates, oxalate, calcium and sodium chloride have been shown to have a certain impact the urinary risk profile and contribute to the risk of kidney stone

formation. A detailed assessment of nutritional risk factors is a crucial step in the establishment of the specific dietary therapy of kidney stone patients. An appropriate diet therapy can contribute to the effective prevention of recurrent stones and reduce the burden of invasive surgical procedures for the treatment of urinary stone disease. In other words, dietary modifications based on the documented urinary risk factors were found to have a pivotal role to reduce the risk of recurrent stone formation. Dietary therapy should be individualized according to the patient-specific biochemical and dietary risk profile. This approach has been demonstrated to be more effective than general dietary measures in the prevention of new stone formation. There is no single specialized diet program which may fit to all cases and there are guidelines based several dietary recommendations, including adequate fluid intake, modest calcium intake, low dietary sodium, and limited animal protein which have been found to be effective in stone prevention.

Last but not least, another important aspect of dietary modification which outlines the success rates obtained in stone forming patients is the close monitorization of these cases with respect to their compliance rates to the proposed modifications in their daily lives. This component requires a close collaboration between the physicians (urologist, dietitian) and patients with regular follow-up visits.

In this special issue, by outlining the evidence supporting dietary recommendations, we aimed to provide a comprehensive and updated overview on the role of nutrition and diet in kidney stone disease.

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✉ Kemal Sarica  
saricakemal@gmail.com

<sup>1</sup> Department of Urology, Health Sciences University, Prof. Dr. İlhan Varank Education and Training Hospital, Istanbul, Turkey