

# Support for Healthy Kidney Function

Developed and reviewed by the clinical, chiropractic, and naturopathic members of the Standard Process team

## Kidney Health and Function

The kidneys play several key roles in human physiology including the excretion of metabolic waste products, fluid and electrolyte balance, hormone synthesis, and bone health support.

The nephron is the structural and functional unit of the kidney. On average, each kidney contains over one million nephrons. Each nephron includes a glomerulus and a tubule; these structures filter blood, remove waste products, and return essential substances to circulation. The renal arteries supply the kidney with blood that flows through the capillary network of the glomerulus. This network allows small molecules, waste products, and water to pass into the renal tubules while keeping larger molecules such as proteins and blood cells within the blood vessels. Glomerular filtration rate (GFR) measures the flow of plasma through the glomeruli and is a key marker of kidney function. Urine is a product of the nephron and contains water-soluble, nitrogen-rich metabolic waste compounds that must be cleared from the blood.

The kidneys are important endocrine organs. They produce the hormone erythropoietin (EPO) which regulates red blood cell production. They also make the active form of vitamin D (1,25-dihydroxyvitamin D3) which plays an integral role in calcium and phosphorus metabolism, skeletal health, and the regulation of parathyroid hormone.

Chronic kidney disease affects tens of millions of people in the United States, and most are unaware that they have it. Patients with diabetes and high blood pressure are at greater risk of developing long-term kidney problems.

Lifestyle and nutrition interventions can help support nephron function, metabolic health, and vascular tone, while minimizing nephrotoxic exposures.

## Supportive Lifestyle Practices

- Recommend regular aerobic and/or resistance exercise to support kidney health. Multiple studies have shown that physical activity can improve GFR and kidney function.<sup>1</sup> Both moderate and high-intensity exercise are considered beneficial, practical, and safe for those with kidney disease.<sup>1</sup>
- Educate patients about common nephrotoxic medications including non-steroidal anti-inflammatories (NSAIDs) and acetaminophen. These medications are known to cause kidney injury, especially when used long-term.<sup>2</sup>
- Encourage smoking cessation. Cigarette smoking is an independent risk factor for chronic kidney disease. Smoking is thought to cause kidney injury through chemical exposure and changes in hemodynamics such as blood pressure, GFR, and endothelial cell dysfunction.<sup>3</sup>

## Whole Foods Nutritional Recommendations

- Recommend adequate vitamin A consumption from whole food sources. Vitamin A and its metabolites have been shown to support the function of the glomerular filtration barrier, modulate inflammation, and support EPO synthesis.<sup>4</sup> Provitamin A can be found in foods like carrots and sweet potato, while preformed vitamin A is found in foods of animal origin such as egg yolk and dairy.
- Recommend that patients consume garlic regularly. Components in garlic have been shown to support the function of nephrons, reduce oxidative stress, and support healthy blood pressure.<sup>5</sup>
- Educate patients on the benefits of a high-fiber diet for kidney health. Increasing fiber intake from foods like fruits and vegetables has been shown to reduce the production and absorption of uremic toxins through fiber's effect on the intestinal microbiome.<sup>6</sup>

# Dietary Supplement Regimen



## Renatrophin PMG®

Suggested Use: **1 tablet, three times per day on an empty stomach**

Renatrophin PMG® contains bovine kidney PMG™ extract, a proprietary Protomorphogen™ blend.

- PMGs contain a unique profile of nucleotides and peptides from bovine kidney.



## Cataplex® A-C

Suggested Use: **2 tablets per meal**

Cataplex® A-C, which contains Echinacea and vitamins A & C, helps support immune system function, and a healthy hematopoietic (blood cell & plasma creation) system.\*

- Supports a healthy immune system response function\*
- Maintains healthy cells and tissues\*
- Helps maintain healthy epithelial and connective tissues\*
- Contains a combination of key ingredients from Cataplex® A and Cataplex® C along with organic Echinacea
- Excellent source of antioxidant vitamin A
- Good source of antioxidant vitamin C



## Renafood®

Suggested Use: **1 tablet per meal**

Renafood® contains vitamin A for healthy kidney function.\*

- Supports healthy kidney function\*
- Contains a combination of key ingredients from Arginex® and Renatrophin PMG®
- Excellent source of antioxidant vitamin A



## Rehmannia 1:2

Suggested Use: **Dilute 5ml in water or juice once per day**

Rehmannia root has been traditionally used in herbal preparations to:

- Clear heat and cool the blood\*
- Maintain normal body temperature\*
- Support healthy adrenal gland function\*

## Assessment of Kidney Health

## In Office/Physical Exam

- Key Labs: Complete blood count (CBC), C-reactive protein (CRP), comprehensive metabolic panel (CMP) with glomerular filtration rate (GFR), blood urea nitrogen (BUN), and creatinine
- Physical Exam: Abdominal exam, Costovertebral angle tenderness
- Urinalysis
- Kidney imaging

## REFERENCES

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5. García Trejo, E. M. Á., et al. (2017). International journal of molecular sciences, 18(9), 1980.
6. Chauveau P. (2019). Nephrology, dialysis, transplantation, 34(6), 893–896.