



## Lecture 80:

# **Nutritional Approach To Common Urological Disorders**

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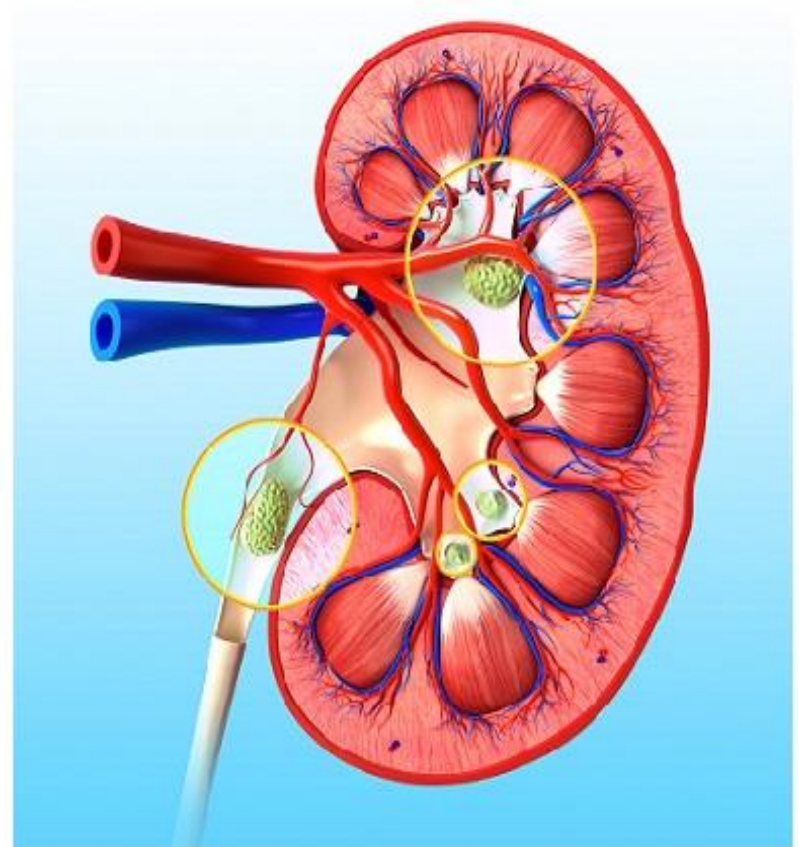
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## **The Two Common Disorders:**

- **Kidney Stones.**
- **BPH (Benign Prostatic Hyperplasia).**

# Kidney Stones:

- Kidney stones are very common especially between ages 20 and 45 years old, affecting men 5 to 10 times more than women.
- The medical term for kidney stone is “*nephrolithiasis*”.



Kidney Stones. Image: Copyright©Depositphotos.com/Shubhangi Kene

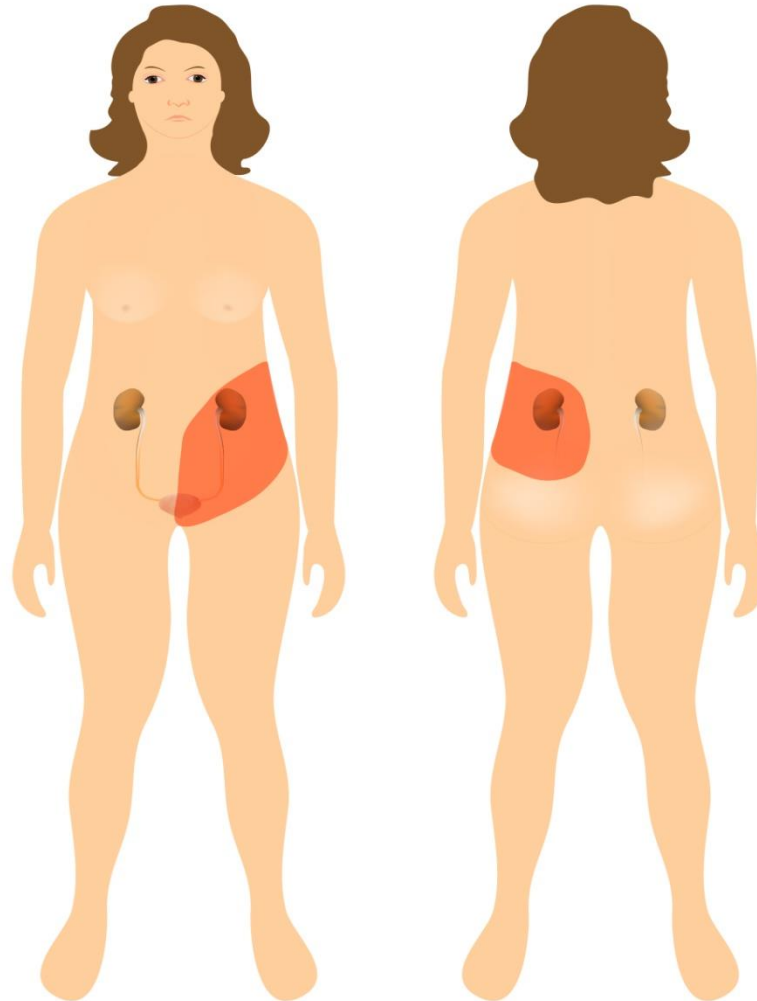
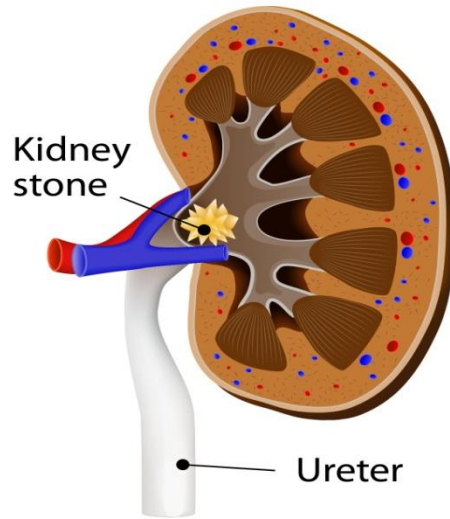
## **There are four types of kidney stones:**

- **Calcium oxalate or phosphate: 70 - 75%.**
- **Struvite (triple phosphate, magnesium-phosphate-ammonium): 15 – 20%.**
- **Uric acid: 10 -15%.**
- **Cysteine: 1 – 5%.**

- **Signs and symptoms of kidney stones may vary significantly.**
- **If the stones are small, they usually pass through urine by themselves (occult passage).**
- **And if they are big, they stuck in the kidneys and do not cause any symptoms. However, a prominent symptom is flank pain that sometimes radiates down to the belly or groin.**

- **The pain occurs when the stones start moving and it is sometimes very severe and intolerable.**
- **Other signs and symptoms are frequent urination, blood in urine, nausea, vomiting, and infection.**

# KIDNEY STONE



The typical location of renal colic







## ***Risk factors:***

### **Calcium Oxalate or Phosphate:**

- **High level of calcium in urine.**
- **High level of uric acid in urine.**
- **High level of oxalate in urine.**
- **Low level of citrate in urine.**
- **Dehydration.**
- **Consumption of too much animal-based proteins.**

- **Hereditary.**
- **Sarcoidosis.**
- **Hyper active thyroid gland.**
- **Hyper active parathyroid gland.**
- **Acidic diet.**
- **High oxalate intake.**
- **Vitamin D toxicity.**

- **Magnesium deficiency.**
- **Obesity.**
- **Prolonged immobility.**
- **Very high doses of vitamin C.**
- **Crohn`s disease.**
- **Poor absorption.**
- **Poor fiber diet.**

## **Struvite (Triple Phosphate):**

- Increased calcium in urine for any reasons.
- Increased oxalate in urine for any reasons.
- Anomalies of the anatomy of the urinary tract system.
- Kidney or urinary tract infections.
- Gender: females.

### **Uric Acid:**

- Dehydration.
- Gout.
- Increased level of uric acid in urine.
- Chemotherapy.
- Some blood diseases.
- Excess dietary purines.
- Persistently acidic urine.

### **Cysteine:**

- Increased level of cysteine in urine.

## ***Nutritional Supports:***

- **Depending on the type of the stone, nutritional advice varies.**



# **Calcium Oxalate or Phosphate:**

## **Restricted Foods:**

- **Red meats.**
- **Vegetables high in oxalate: spinach, rhubarb, beet, okra, collards, celery, eggplants, kale, green beans, potatoes, sweet potatoes, parsnips, green pepper, watercress, and parsley.**
- **Fruits high in oxalate: berries, figs, kiwi, grapefruit, and concord grapes.**
- **Legumes.**

- **Nuts and seeds high in oxalate: almonds, peanuts, Brazil nuts, hazelnuts, pecans, sesame seed, and sunflower seeds.**
- **High dose of Vitamin C**
- **Too much salt.**
- **Alcohol.**
- **Caffeine.**
- **Refined sugars.**
- **Soft drinks.**
- **Antacids containing aluminum.**

## **Recommended Foods:**

- **Drinking plenty of water: over 2 liters a day.**
- **Cranberry juice.**
- **Foods high in magnesium: bananas, avocado, coconut, cashews, corn, barley, brown rice and oats).**

## **Struvite (Triple Phosphate):**

- **Recommendations are the same of those for kidney stones of calcium oxalate or phosphate types.**

# Uric Acid:

## Restricted Foods:

- Beef, Pork, Chicken, Turkey.
- Fish (sardines, herring, mackerel, anchovies).
- Sweetbreads (animal thymus).
- Eggs.
- Beef kidneys.
- Liver.
- Animal brain.
- Scallops, Shrimps, Mussels.
- Meat broths and gravies.

- **Beans (legumes).**
- **Spinach.**
- **Rhubarb.**
- **Mushroom.**
- **Asparagus.**
- **Cauliflower.**
- **Beer.**
- **Alcohol.**
- **Refined sugars.**

## **Recommended Foods:**

- **Water, more than 3 liters a day.**
- **Flaxseed.**
- **Celery.**
- **Fish (salmon, cod, halibut).**
- **Lime.**
- **Lemon.**
- **Vinegar.**
- **Soy protein.**
- **Dairy products (low fat).**

# **Cysteine:**

## **Restricted Foods:**

- **Acidic diet.**
- **Foods high in methionine: soy, dairy products, wheat, fish, lima beans, chick peas, egg whites, and all nuts except hazelnuts.**

## **Recommended Foods:**

- **Water: more than 2 liters a day.**
- **Alkaline diet.**



## Recommended Supplements:

- **Magnesium:** 200 – 400 mg a day.
- **Potassium citrate:** 100 mg a day.
- **Vitamin B6:** 50 mg a day.
- **Inositol hexaphosphate (IP-6):** 120 mg a day.
- **Aloe vera juice:**  $\frac{1}{4}$  -  $\frac{1}{2}$  cup three times a day.

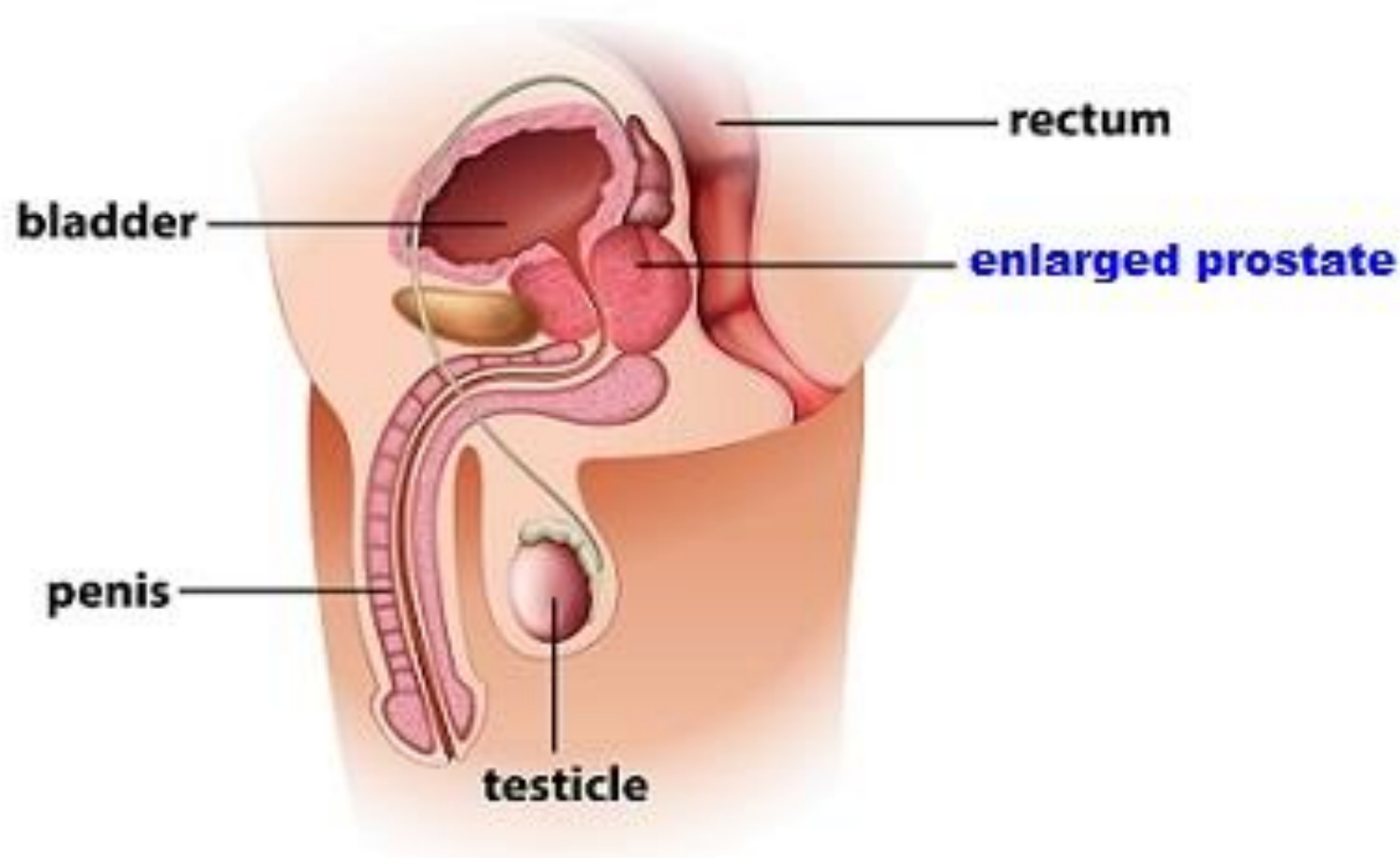
- **Vitamin E:** 400 – 800 IU a day.
- **Ammonium chloride** (for struvite stones only): 300 – 600 mg a day.
- **Cranberry extract:** 400 – 800 mg a day.
- **Grape seed extract:** 50 -100 mg a day.
- **French Maritime Pine Bark Extract:** 50 – 100 mg a day.

# **Benign Prostatic Hyperplasia (BPH):**

- **Benign prostatic hyperplasia (BPH) is an age-related and non-malignant enlargement of the prostate gland.**
- **It is a very common disease in men, affecting about 50% of men age over 50.**

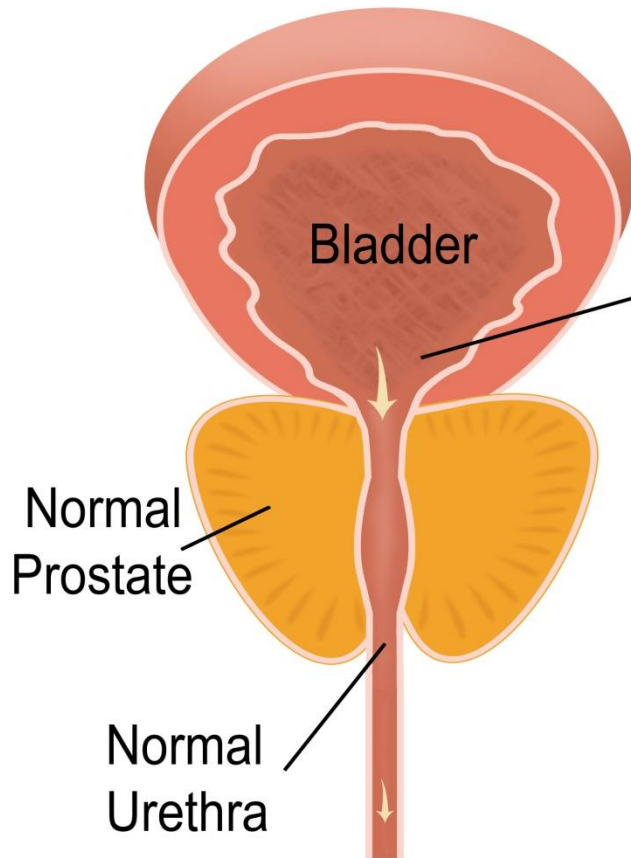
- **In BPH, the prostate gland gets enlarged and compresses the urethra passing through, leading to partial obstruction of the urinary tract.**

# Enlarged Prostate Gland

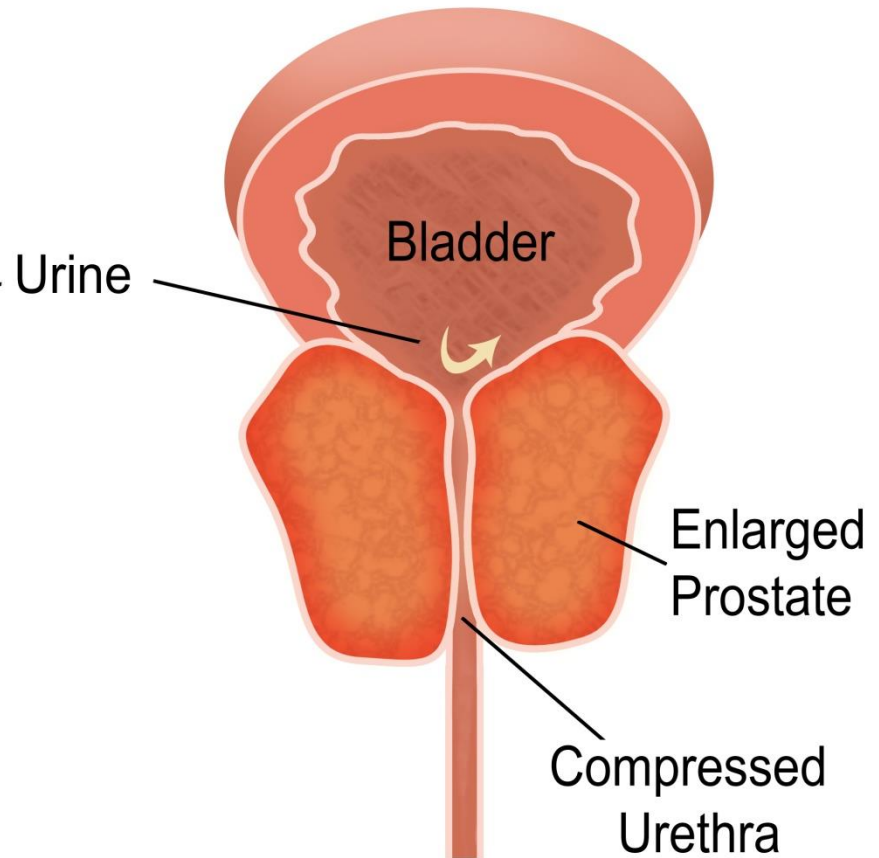


# BENIGN PROSTATIC HYPERPLASIA

## NORMAL PROSTATE



## ENLARGED PROSTATE



- **The exact cause of hyperplasia is unknown.**
- **However, age-related hormone imbalance could be a key contributing factor.**
- **It is believed that dihyrdotestosterone (DHT), an active metabolite of testosterone, has an important role in the process.**

The **signs and symptoms of BPH** are related to the compression of the urethra, and they include

- decreased caliber and force of the urinary stream
- increased frequency of urination
- dribbling
- hesitancy
- incomplete emptying of the bladder



- **burning feeling with urination**
- **nocturia (increased nighttime urination)**
- **urinary tract infections**

## **Restricted Foods:**

- **Saturated fats.**
- **Trans-fats.**
- **Sugar and sweets.**
- **Processed foods.**
- **Alcohol.**
- **Coffee.**
- **Caffeinated beverages.**
- **Soft drinks.**

- **Foods high in tryptophan.** Tryptophan may increase the secretion of prolactin. This hormone increases the uptake of testosterone by the prostate, which may aggravate the enlargement.
- **Black pepper.** It may aggravate symptoms of BPH.

## **Recommended Foods:**

- **Drinking plenty of water: at least 2 liters a day.**
- **Whole grains.**
- **Foods high in fiber.**
- **Legumes.**
- **Flaxseeds.**
- **Pumpkin seeds.**
- **Foods high in zinc: legumes, sunflower seeds, and pumpkin seeds.**

- **Cold water fish.**
- **Garlic.**
- **Fresh fruits and vegetables: 6 to 8 servings a day.**
- **Foods high in lycopene: gac, tomato, watermelon, and grapefruit.**

- **Food high in bioflavonoids: berries.**
- **Foods high in amino acids glycine and alanine. These two amino acids reduce symptoms of BPH.**
- **Soy products. They contain phytosterols, which improve symptoms of BPH.**

- **Reishi mushroom. It contains ganoderic acid, a phytonutrient that reduces the conversion of testosterone into dihydrotestosterone (DHT) by inhibiting the enzyme 5-alpha-reductase.**

# Recommended Supplements:

- **Omega – 3 fatty acids:** 2 -3 grams a day. It reduces inflammation.
- **French Maritime Pine Bark Extract:** 100 – 200 mg a day. It reduces inflammation and improves blood circulation.
- **Grape seed extract:** 50 – 100 mg a day.
- **Zinc:** 50 – 100 mg a day.



- **Saw Palmetto:** 320 – 640 mg a day. Saw palmetto inhibits conversion of testosterone into dihydrotestosterone (DHT).
- **Beta-sitosterol:** 60 -120 mg a day.
- **Rye pollen extract (cernilton):** 500 – 1000 mg a day. Cernilton reduces inflammation, improves symptoms of BPH, and blocks the growth of prostate cells.
- **Pygeum africanum** (containing 13% total sterols): 100 – 200 mg a day.

- **Nettle root extract:** 120 – 240 mg a day. It reduces symptoms of BPH.
- **Glycine:** 500 – 1000 mg a day.
- **Alanine:** 500 - 1000 mg a day. Along with glycine and glutamic acid, alanine may reduce symptoms of BPH.
- **Multivitamins – Multiminerals:** A high potency product.

# Miscellaneous Suggestions:

- **Exercise:** studies show that there is a link between an increased physical activity and a decreased risk of developing BPH.
- **Liver detoxification.**
- **Colon cleansing.**

# Homework:

- **1) Describe the dietary changes in people with kidney stones of oxalate type.**
- **2) Describe few supplements that might be useful in a case of enlarged prostate.**



