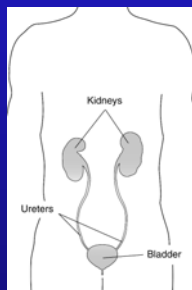


Welcome to Missouri Kidney Program's Patient Education Program

Introduction to Kidney Disease

Where Are My Kidneys?

Your kidneys are fist-sized organs located on each side of your spine above your waist

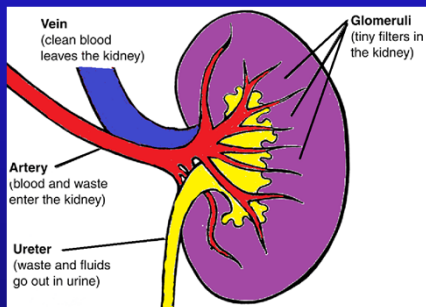


NIDDK

What Do Kidneys Do?

- Filter and remove wastes from the blood and excess fluid from your body in urine
- Make hormones to control your blood pressure, make red blood cells & keep your bones healthy
- Balance levels of calcium, phosphorus, sodium, & potassium in your body

What Are the Parts of a Kidney?

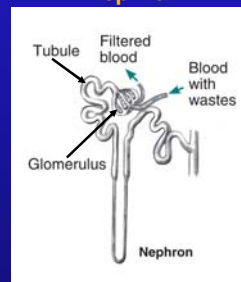


NIDDK; color added by Missouri Kidney Program

How Do Kidneys Work?

- 1 Million nephrons/kidney
- **Glomeruli** filter wastes from 120-150 quarts of blood/day producing 1-2 quarts of urine
- Fluid & waste become urine in the **tubules**
- Clean blood returns to blood vessels

A nephron



NIDDK

What Happens When Kidneys Don't Work As They Should?

- Your doctor may say you have CKD if your labs for more than 3 months show:
 - Glomerular filtration rate (GFR) below 60
 - Spot urine albumin-to-creatinine ratio (UACR) above 30
- CKD may or may not progress to kidney failure

What Are Some Symptoms of CKD?

- Low energy
- Weakness
- Nausea, vomiting
- Poor appetite
- Hiccups
- Urine changes
- Swelling
- Restless legs
- Difficulty breathing
- Dry skin
- Itching
- Headache
- Poor diabetes control
- Sleep problems
- Feeling sad, moody
- Low sex drive
- Memory problems
- Confusion



What Tests Are Used to Diagnose CKD?

Doctors may use any/all of these tests:

- Urine
- Blood
- Ultrasound
- Biopsy

How Does Your Doctor Decide If You Have CKD?

Glomerular Filtration Rate (GFR) – provides a ballpark figure for your kidneys' health to "stage" CKD

GFR is based on:

- Creatinine, age, race & sex
- Sometimes BUN, albumin & weight

What Are Stages of CKD?

| Stage | Description | GFR |
|-------|---------------------------------|----------------|
| 1 | At risk, normal GFR | Higher than 90 |
| 2 | Kidney damage with mildly ↓ GFR | 60–89 |
| 3 | Moderately ↓ GFR | 30–59 |
| 4 | Severely ↓ GFR | 15–29 |
| 5 | Kidney failure (ESRD) | Lower than 15 |

Lowering protein (albumin) in urine may slow kidney decline

Who Is At Risk? One in 10 Americans*

Risk factors:

- Some diseases
- Acute kidney failure
- Older age
- Racial/ethnic minority
- Some chemicals/drugs, including tobacco
- Poverty

Kidney disease can run in families. Ask your doctor to check your kidneys.

What Are Types of Kidney Failure?

- **Acute** kidney failure may be short-term or may become chronic kidney failure
- **Chronic** kidney failure – usually treated on an out-patient basis – is most often permanent

How Common Is Chronic Kidney Failure in the U.S.?

- 118,014 new patients started dialysis or had a kidney transplant¹
- 477,476 were on dialysis¹
- 200,907 had a kidney transplant¹
- 8,550 in MO were on dialysis²
- 4,166 in MO had a kidney transplant²

What Are the Leading Causes of Kidney Failure?

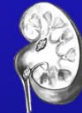
#1 Diabetes #2 High Blood Pressure



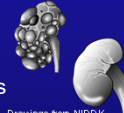
What Else Can Cause Kidney Failure?

- **Circulation problems** – diabetes, high blood pressure, renal artery stenosis
- **Inflammation** – glomerulonephritis
- **Obstruction** – kidney stones, tumors, prostate problems
- **Genetic** – polycystic kidney disease (PKD), Alport syndrome, FSGS
- **Infection** – pyelonephritis, cystitis, UTI
- **Auto-immune diseases** – HIV/AIDS, Lupus

Kidney stones



Polycystic vs. healthy kidney



Drawings from NIDDK

What Are Other Causes of Kidney Failure?

- Some prescribed & OTC meds
- Toxic chemicals
- Birth defects
- Kidney injury
- Urinary reflux
- Some contrast dye used in imaging

What Can I Do to Protect My Kidneys?

Contrast dye for scans can be harmful – tell the radiologist if you have CKD to reduce your risk of worse kidney damage:

- If on dialysis, they may suggest you do dialysis soon after the scan
- If not on dialysis, they may give you IV fluids or tell you to drink lots of water after the scan – very important!
- They may do a different test with no dye or use different or less dye

What Else Can I Do To Protect My Kidneys?

- Tell your doctors all your symptoms
- Follow your doctor's advice on fluid, salt & diet
- Control your diabetes, blood pressure & cholesterol
- Get tested for sleep apnea – common in diabetes & high BP
- Trouble emptying your bladder? Prostate issues? Get it checked out; holding urine in bladder too long is not good
- Exercise 30+ minutes 3 to 4 days per week
- Stop smoking counseling* can help you quit

*Medicare or insurance usually covers

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What Problems Can Result from CKD?

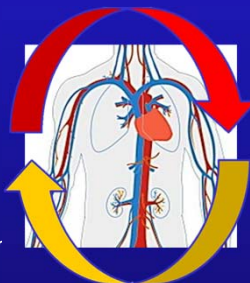
- High blood pressure
- Heart disease
- Anemia (low red blood cells)
- Malnutrition due to vomiting, food tasting bad, poor appetite
- Bone disease

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How Are My Heart & Kidneys Connected?

- High blood pressure & heart failure lead to kidney disease
- Kidney disease can raise blood pressure & worsen heart disease
- If you have heart &/or kidney disease, get regular check-ups for both



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What Do I Need to Know About CKD & Bone & Heart Health?

- When kidneys are healthy parathyroid hormone (PTH) & vitamin D keep calcium & phosphorus balanced in blood for healthy bones, teeth, muscles, nerves & tissues
- When kidneys are damaged, the body can't convert vitamin D from sun, food & supplements to the form your body can use so calcium & phosphorus may not stay balanced
- When calcium & phosphorus are out of balance, PTH goes up pulling calcium from bones making them brittle & blood vessels & other tissues stiff
- Follow your diet & take drugs as prescribed to keep your labs for calcium, phosphorus & PTH where they need to be

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What Should I Ask My Doctor?

- For a referral to medical nutrition therapy* &/or diabetes self-management education*
- If an ACE inhibitor (ends in "pril") or ARB (ends in "artan") is needed to protect kidneys
- What pills to take for pain other than non-steroidal anti-inflammatories (NSAIDs) (e.g., aspirin, Advil®, Aleve®, Celebrex®, Excedrin®, Motrin®, Midol®)
- If a medicinal herb or over-the-counter (OTC) drug you want to take is safe for you

*Medicare or insurance usually cover

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What Medicines May I Be Expected to Take?

- Blood pressure pills
- Water pills (diuretics)
- Vitamins
- Nutritional supplements
- Phosphate binders
- Stool softeners
- Iron
- EPO (Procrit®, Epogen®, Aranesp®, Mircera®)



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What Are Some Medication Tips?

- Keep a current list of all your medicines
- Take your drugs exactly as prescribed
- Tell your doctor or druggist if you can't afford your drugs
- Ask your doctor if you can use a generic
- If possible, buy a small supply of any new drug to see how it works for you

What Are Tips at the Pharmacy?

- Buy drugs from one drug store to avoid interactions
- Ask your druggist how foods or drugs you take affect how a drug works & what else you need to know
- Read drug labels/information packets that come with prescribed and OTC drugs



What Are Some Other Tips for Me & My Family?

- Learn about kidney disease and its treatment
- Use online patient portal to get free records if your doctor, hospital or lab has one
- **Keep a medical journal, notebook or phone app to list:**
 - Current medications & dosages
 - Appointment times
 - Symptoms to discuss with the healthcare team
 - Questions to ask team members
 - Lab results (ask for copies)
- Bring journal & someone with you to office visits

What If I Choose Not to Treat My Kidney Failure?

Natural death will occur & how long you'll live depends on your kidney function – you may want to:

- Talk with loved ones
- Consider trying dialysis for a month
- Ask someone you trust to make decisions for you
- Help your family by making end-of-life plans
- Your doctor & hospice can manage symptoms
- No special diet, but limit salt & fluids for comfort
- You can change your mind, but don't wait too long

What Options Do I Have for Treating Kidney Failure?

- **Kidney transplant** – living or deceased donor
- **Peritoneal dialysis** – manual (CAPD) or cyclor (CCPD, also APD), mostly at home
- **Hemodialysis** – in-center or at home

Treatment options are discussed in-depth later

Who Is on Your Healthcare Team?

| | | |
|--------------------|----------------|--------------|
| Nephrologist* | Dietitian* | YOU* |
| Surgeon | Social Worker* | Your family |
| Any doctor | Technician | Your friends |
| Nurse* | Pharmacist | |
| Nurse Practitioner | Educator | |
| Dentist | | |



***If you're on dialysis & it's not offered, demand to be a part of plan of care meetings with key team members**

What Are My Patients' Rights?

- To be treated with dignity & respect
- To be informed and give consent for any treatment
- To say what health info can be shared & with whom
- To take part in your care as much as you want
- To privacy & confidentiality
- To services in your care plan
- To proper access to staff
- To have an advance directive & know policies about them
- To be told about:
 - Your medical status
 - All treatment options, settings & resources
 - Patient care policies
 - Services & charges
 - Rules & expectations
 - How to file a grievance

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What Are My Responsibilities?

- To be on time for appointments
- To follow your diet & medication orders
- To tell your team your symptoms & concerns
- To be as involved in your care as you want to be
- To treat others with dignity & respect
- To maintain fitness as much as you can
- To work if you can
- To report changes in insurance & contact information

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You're in charge of your healthcare. Your quality of life depends on you.



You can do this!

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