Kidney School™

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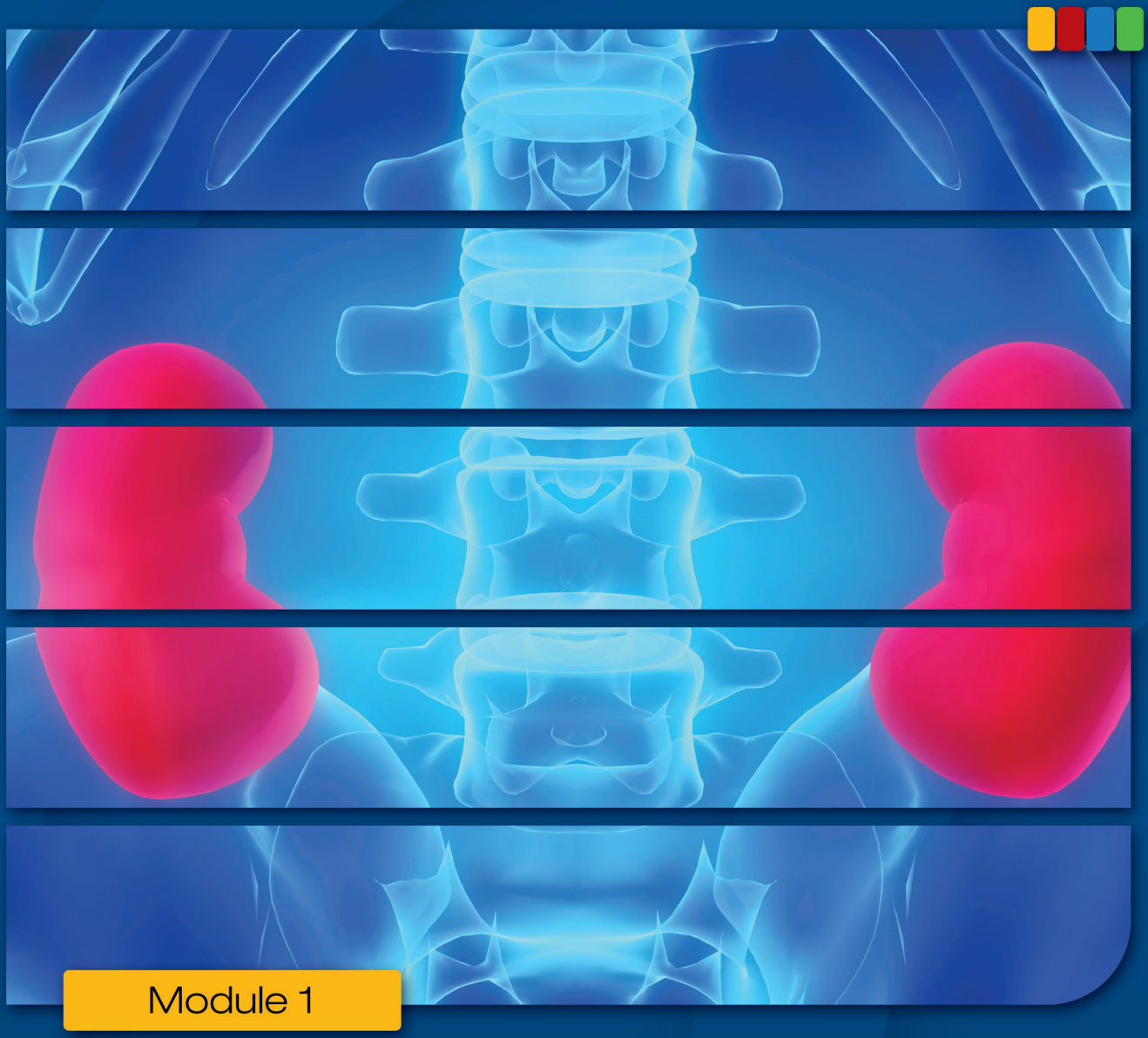


Module 1

Kidneys: How They Work, How they Fail, What You Can Do

Module 1 – Table of Contents

Please Note
Use of Kidney School does not replace the need to talk with your health care team about your care and your options.

Module 1 – Kidney Quiz Answers

Congratulations, you've finished the quiz! Here are the correct answers so you can see how you did:

1) c **6)** a
2) b **7)** b
3) b **8)** True
4) False **9)** b
5) c **10)** True

As you make your way through this module and others, you'll meet people who are having good lives in spite of their kidney problems. One of them is Nancy. "While I was growing up, my father always told me, 'Nancy, you can do anything if you want it badly enough,'" says Nancy Spaeth, RN, member of the Life Options Rehabilitation Advisory Council.

Four kidney transplants, two children, and two graduate degrees later, those words still ring true for Spaeth, who has had kidney failure since 1959. The longest-living patient of the Northwest Kidney Centers' program—the first out-of-hospital dialysis center in the world—Nancy is living proof that it is possible to live long and live well with kidney failure.

How? That's what you'll start to learn in this module. We'll cover:

1. How normal kidneys work
2. What happens when kidneys stop working
3. Causes of kidney disease
4. Common issues about living with kidney disease

Kidney School will do more than just give you facts. Besides being fun and creative, we want to empower you to *use* what you learn. The three keys to a long life with chronic kidney disease are having a positive attitude, getting answers, and taking action. So, let's get started.

The first question you might be asking is, "Why should I learn about normal kidney function when my (or my loved one's) kidneys don't work normally anymore?" Great question! Here are

some ways that knowing what kidneys were designed to do can help you:

- You'll understand what happens in the body when the kidneys fail.
- You'll be able to ask the doctor about treatments that may help slow down kidney failure.
- You'll be more aware of how kidney disease and its treatment can affect you (or your loved one).
- You'll be able to speak with your health care team in an informed and confident way.

The more you know about kidney disease and how the body works, the more control you will feel over your health!

How Kidneys Work

Imagine what might happen if your local water treatment plant stopped removing toxins and waste from your drinking water. Surely you and everyone else drinking city water would be sick in a short time.

Although we give it little thought, our health depends on the water treatment plant doing its job. A very similar process must occur in our bodies to filter out toxins and waste from our blood.

Fortunately, we have our own built-in treatment plant. You guessed it! Our kidneys. Far more complex than any water treatment plant, kidneys do several vital tasks to keep constant levels of water and key chemicals in our bodies.

Here's how it works. As you eat and drink, your body takes what it needs for energy, nutrients, and self-repair. Leftovers and extra water the body doesn't need become wastes. Some of the wastes end up in the bloodstream and must be filtered out to keep you healthy. *The key job of the kidneys is to maintain homeostasis*—an internal balance of water and chemicals. They do this by filtering your blood.

As you probably know, with every heartbeat, blood is pushed through your body. This means healthy kidneys are always working to clean the blood—24 hours a day, 7 days a week. Each day, kidneys filter out about 2 quarts of extra fluid and wastes (urine). Drop by drop, urine collects in the bladder, until... Presto! Wastes are removed from the body by urination.

1. Cleaning the blood and removing extra fluid is one job of the kidneys. Once the "dirty" blood arrives at the kidney, a million tiny filtering centers called *nephrons* remove wastes and keep what the body needs.

2. Balancing levels of chemicals in the body is a job of the kidneys. Inside the nephrons, sensors keep track of levels of chemicals in the blood (like sodium, phosphorus, and potassium). This allows the kidneys to maintain a constant internal environment (homeostasis).

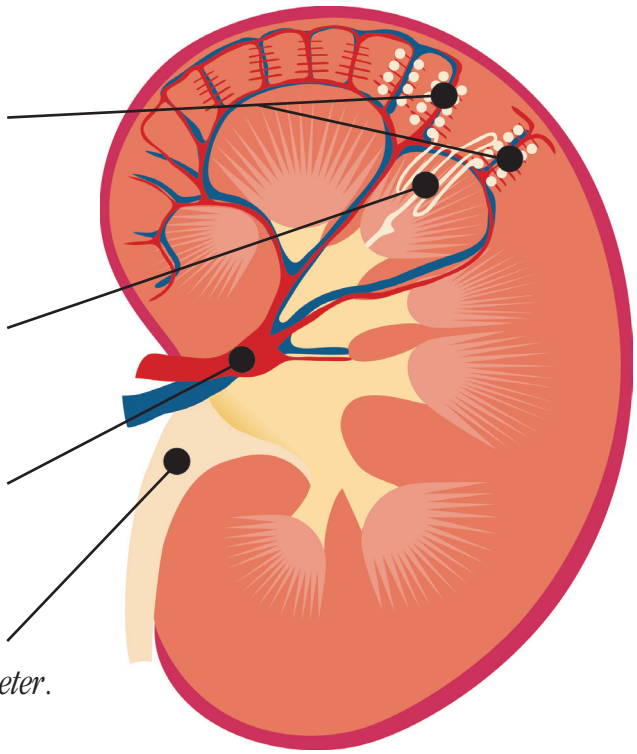
How Kidneys Work

Inside each *nephron*, a special blood vessel called a *glomerulus* works like a strainer to keep blood cells and needed substances in while letting extra fluid and wastes out.

Each kidney contains about one million *nephrons*—tiny filtering centers that clean the blood.

Blood enters the kidney here, through the *renal artery*.

Drop by drop, urine is produced and travels to the bladder through this tube, called a *ureter*.



3 Kidneys also release hormones that control blood pressure and other functions. One hormone, called *erythropoietin*, tells the body to make red blood cells. Another, called *calcitriol*, helps keep bones healthy.

Causes of Chronic Kidney Disease

There are many causes of chronic kidney disease (CKD) that can lead to kidney failure. Some of these will be covered in more detail later in this module. For now, let's explore the major causes.

The number one cause of kidney failure is type 2 diabetes. Currently, more than 23 million people in the U.S.—8% of the population—have diabetes (but nearly one in four don't know it). From 2002 to 2006, 41% of people with kidney failure lost their kidney function due to type 2 diabetes, and another 3.9% to type 1 diabetes. That number is likely to increase, as cases of type 2 diabetes are predicted to double in the next 20 years.

The second most common cause of kidney failure is high blood pressure (hypertension). Hypertension accounts for almost 27% of all kidney failure. In the U.S., nearly 1 in 3 people have high blood pressure. A normal blood pressure reading is 120/80 mmHg or less. With CKD your blood pressure is considered "normal" if it stays below 130/80. Recent studies suggest that people with kidney disease should keep their blood pressure even lower: 120/80.

When Kidneys Stop Working

Did you know that each kidney weighs about 5 ounces, and is about the size of your fist? These small organs play a big part in keeping you healthy.

Nancy: Looking for Answers

"You can find answers to your questions. I know that doctor time is short, so I make a list of my questions. Sometimes I schedule a 20 to 30 minute appointment if I have a serious matter to discuss. You can go to the internet or library. There are books, videotapes, pamphlets, and audiotapes you can order. The web is full of good information, but make sure you are going to a reputable site. I also call my dietitian and ask her questions. Recently, my protein levels were falling. My dietitian looked at my diet and decided I was eating enough protein. It turned out that the lab was doing something wrong! But I kept up with it until I got answers. The dietitian is probably the resource I use the most. Ask someone to refer you to a person who can help you."

In fact, the kidneys are so good at what they do that it's possible to live a healthy lifestyle with only one kidney. And many people do. Some people are born with only one kidney or choose to donate one of their kidneys to a family member or friend who has kidney disease. Others have varying levels of kidney disease that reduce their kidney function.

One kind of kidney disease is termed *acute renal failure* (ARF). This is a sudden loss of kidney function caused by an illness, injury, or toxin that stresses the kidneys. Many cases of ARF can be treated and reversed.

What Does "Renal" Mean?

Renal means "related to the kidneys."

Stages of CKD

Stage	Description	GFR*	What to Do
1	Kidney damage with normal or increased GFR	≥90	• Diagnose & treat the problem and/ or other illnesses to slow the rate of CKD progression • Reduce heart disease risk
2	Kidney damage with mildly reduced GFR	60-89	• Estimate the rate of CKD progression
3	Moderately reduced GFR	30-59	• Assess and treat complications
4	Severely reduced GFR	15-29	• Prepare for kidney replacement therapy
5	Kidney failure	<15	• Kidney replacement therapy

**GFR is reported in mL/min/1.73 m²*

Most people with kidney problems have *chronic kidney disease* (CKD). CKD is a long and usually slow process where the kidneys slowly lose function. When the kidneys function at 15% or less, this is called kidney failure or end-stage renal disease (ESRD). But even if kidney function ends, it doesn't mean your life does!

More than 75% of the one million nephrons in each kidney must be damaged to cause illness. This means that small declines in renal function do not cause a problem right away. It can take many years to go from CKD to ESRD. Most people with CKD live out their lives without ever reaching ESRD.

The National Kidney Foundation (NKF) has divided CKD into 5 stages, based on the level of filtering the kidneys can do (called *glomerular filtration rate*, or GFR). The chart to the left was adapted from the Kidney Disease Outcomes Quality Initiative (KDOQI) Guidelines.

Most CKD cannot be cured. The good news is that if a kidney problem is found early, there may be a number of ways to help you feel better and to slow down the disease. Important ways your doctor might suggest include:

About Kidneys and Hormones

Hormones are substances made in one part of the body that act on another part. Kidneys make three hormones.

Renin is a kidney blood pressure hormone. It helps control how much sodium (salt) and fluid the body saves and how relaxed the blood vessels are. People with kidney disease usually need blood pressure pills because their kidneys no longer control blood pressure.

Erythropoietin (EPO) is a kidney hormone that tells the bone marrow to make new red blood cells. Many people with kidney disease have *anemia*, a shortage of red blood cells, that makes them feel very tired. Injections of EPO are used to treat anemia, along with iron.

Kidneys also make *calcitriol*, a hormone that helps the body absorb calcium from food. Without calcitriol, the body steals calcium from the bones. Over a long period of time, this can cause bone disease. Calcitriol injections or pills are used to help avoid bone disease in people with kidney disease.

- **Anemia treatment** – *anemia* (a shortage of red blood cells) starts very early in kidney failure and can make you very tired.
- **Medication** – for example, blood pressure pills called "ACE Inhibitors" or "Angiotensin Receptor Blockers" (ARBs) can help protect kidney function.
- **Eating changes** – some doctors believe a low protein diet can help slow kidney disease.
- **Avoiding certain pain pills** – overuse of some over-the-counter pain pills with ibuprofen, naproxen, acetaminophen, or pain medications with caffeine in them can damage kidneys.
- **Regular blood pressure checks** – high blood pressure can cause or speed up kidney failure.
- **Cut back or quit smoking** – smoking tobacco can make kidney problems worse.

Your doctor only recommends; *you* must make the daily choices to follow those suggestions. When a person reaches ESRD, both kidneys have stopped or almost stopped doing their jobs. The body fills up with extra fluid and wastes that would normally be filtered out. This is called *uremia*. If you learn the signs of uremia, you'll be better able to watch for them and alert your doctor. See the next page for signs of uremia.

Nancy: Kidney Disease

"My kidneys failed from glomerulonephritis, supposedly from a strep germ. The times in junior high and high school were probably more difficult than today. There was not much awareness about healthy eating. There were no prepared foods without salt. We cooked everything from scratch. A low sodium diet (or salt-free diet, as we used to call it) is essential, in most cases, to be a healthy dialysis patient. It was difficult to watch my diet when I was young, but I tried very hard. My kidneys began to fail when I was 11 years old. I didn't start dialysis until I was 19."

Warning Signs of CKD

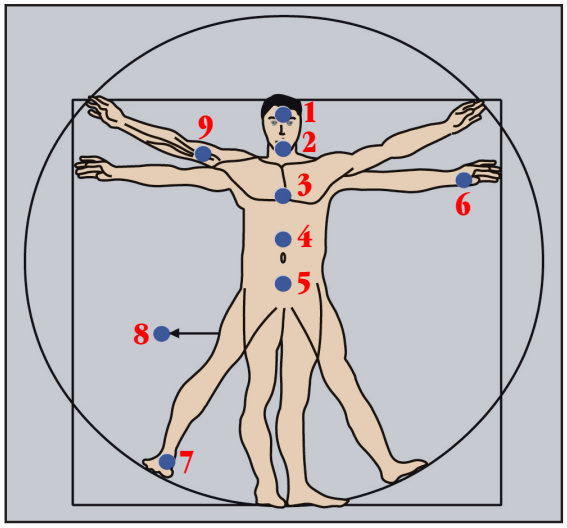
Many people who have CKD don't know it, because the early signs can be very subtle:

- **Changes in urination**—like foamy urine, blood in the urine, more or less urine than usual, or getting up at night to urinate
- **Fatigue**—lack of usual energy and feelings of overwhelming tiredness can be related to kidney failure
- **Itching**—the build-up of wastes in the blood can cause severe itching
- **Swelling in the hands and/or feet**—failing kidneys don't remove extra fluid, which builds up in the body
- **Shortness of breath**—extra fluid can build up in the lungs, or anemia can cause shortness of breath
- **Pain in the small of the back**—the pain is not made worse by movement

If you or someone you know has these symptoms, or you are worried about kidney problems, see a doctor for blood and urine tests.

Signs of uremia:

1. **Head** – headaches, fatigue, and fuzzy thinking can be caused by uremia.
2. **Mouth** – food may taste bad or like metal, causing a loss of appetite.
3. **Lungs** – shortness of breath can be caused by a build-up of fluid in the lungs or by anemia.
4. **Stomach** – loss of appetite, nausea, and vomiting can occur if uremia is very severe.
5. **Bladder** – less (or no) urine may be produced. Some people still make urine, but it is mostly fluid—the wastes are not removed.
6. **Hands** – swelling can be caused by fluid build-up.
7. **Feet** – swelling can be caused by fluid build-up.
8. **Skin** – build-up of uremic wastes can cause severe itching.
9. **Blood vessels** – high blood pressure can occur, because the failing kidneys no longer keep blood pressure at normal levels.



If you have chronic kidney disease and diabetes:

- The single most important thing you can do to preserve your kidneys is to keep your blood sugar under control. Regular blood sugar checks are very important.
- High blood pressure adds to the kidney damage diabetes can cause. Take all your blood pressure pills as prescribed, and check your blood pressure.

Types of Diabetes

You may not know that there are three main types of diabetes. Type 1 diabetes means the pancreas (which makes insulin) has shut down. It usually happens in children and young people. People with type 1 diabetes must take insulin to live.

In type 2 diabetes, the body still makes some insulin, but the cells ignore it. Type 2 diabetes is ten times more common than type 1, and many people who have it don't know it. Type 2 diabetes has all the same long-term problems as type 1 diabetes if blood sugar levels are not controlled. There is no such thing as "borderline diabetes" or "a touch of the sugar." Diet, exercise, pills, and sometimes insulin are used to treat type 2 diabetes.

Gestational diabetes, the third type, occurs only during pregnancy. Gestational diabetes usually goes away after the pregnancy is over. Women who have had gestational diabetes are at higher risk for type 2 diabetes later in life.

- Blood pressure pills called ACE inhibitors can protect kidney function in people with diabetes. Ask your doctor if taking an ACE inhibitor or ARB is right for you.
- Have a urine test for *microalbuminuria* (microscopic amounts of protein) once a year. This test can detect early kidney disease, which may be easier to slow down.

For more information about diabetes and kidney disease, visit the American Diabetes Association's website at www.diabetes.org or ask your health care team for help.

Common Issues About Living with Kidney Disease

Regardless of the cause, once the kidneys get close to stopping, it will be time to decide on a treatment that will best fit your life. The main two types of treatments for kidney failure are dialysis and kidney transplant. We'll share a lot more about these treatments with you in Module 2, but for now, let's talk about some concerns you might have about dialysis, based on things you may have heard.

Let's listen in on a talk between a doctor and her patient, Pat, to learn about a very common myth about dialysis. (See the right side of this page.)

Most people have wrong ideas about living with dialysis. The truth is that people can live decades on dialysis while living active and full lives. But, as you're learning in Kidney School, a long and active life with kidney failure doesn't happen by accident. It takes conscious choices made by you.

Speaking of choices, try to pick the correct date on this history of dialysis question:

Doctor: So, Pat, your kidney failure has reached the point where we need to talk about what type of dialysis treatment you'll be starting.

Pat: That's the beginning of the end for me.

Doctor: What do you mean?

Pat: What you're trying to tell me is that I don't have long to live. Dialysis might keep me alive for a while, but I'll get sicker and sicker and then die in a couple of years.

Doctor: Pat, that is absolutely untrue. Dialysis patients can live good, long lives that include work, travel, and pursuing many of the interests they find satisfying.

Prior to _____ some people with ESRD could not get treatment simply because there weren't enough dialysis machines.

a) 1945 **b) 1964**

c) 1958 **d) 1972**

Most people choose the earlier dates because they think of the last half of the 20th century as more

advanced. But the answer is 1972! Before that date, some people who could have lived with dialysis did not—because they didn't have access to treatment. Prior to the widespread availability of dialysis (paid for by Medicare), ESRD was a death sentence.

We are very lucky to live in a time when an effective treatment exists. The challenge is how to fit dialysis into your life without letting it take over *all* of your life.

The thought of having a chronic disease that won't go away can be discouraging. It certainly isn't what you planned on for your life. But patients we've talked to who have been on dialysis for many years say that keeping a positive attitude—seeing the good side of things—is key to living a long time.

How hopeful do you feel right now about living with kidney disease?

- ❒ **Very hopeful**
- ❒ **Somewhat hopeful**
- ❒ **Discouraged**
- ❒ **Unsure**

Nancy: Dialysis and Life

"The first day I learned that I would eventually need dialysis, I was in high school. Dialysis wasn't a common option then, it was all experimental. When I finally needed it, at 19, I had to go through the 'life and death committee' because Medicare didn't pay for it and there weren't enough dialysis machines. My family thought I would die. I remember my sister-in-law saying to me, 'You know, you may not be chosen.'"

CKD can bring on a wide range of emotions. Some days you may feel very good, and other days, very bad. Being on an emotional roller coaster is common if CKD is new to you. Your emotions may not have settled yet. This is okay. When you are discouraged, it is often because you feel trapped by CKD. The fewer the options you see, the more hopeless you feel.

That is why education is so important. It opens up options that you didn't know about. Just by working through this module, you are taking a wonderful step to increase your understanding of what you can do to improve your life. The more options you see, the more hopeful you become. Don't give up! Keep learning and making good choices. You won't regret it.

Which of the following choices do you feel you need to work on right now to help keep a positive attitude?

- ❒ Choosing to focus on what is good in my life, instead of the bad.
- ❒ Looking for creative ways to adjust to kidney disease instead of asking, "Why me?"
- ❒ Asking questions, searching for answers, and keeping at it until I find what I need.
- ❒ Taking responsibility for my daily health and self-care needs.

Remember, no one keeps a positive attitude all the time. Some days you have the energy and motivation to rise to the challenge and other days you feel defeated. That is normal for anyone living with a chronic illness. The challenge is for you to find ways to stay motivated most of the time.

Here is a list to start you thinking of ways to motivate yourself toward that positive attitude

and a sense that you are in control of your kidney disease. Choose any of the items that you might use to help yourself toward this end. Feel free to add those you think of at the bottom.

- ❒ Reading about others who have learned to live with kidney disease
- ❒ Talking with others who are living with kidney disease
- ❒ Researching information on living with kidney disease (in print, on the web, at the library)
- ❒ Writing down and asking your doctor questions you want answers for
- ❒ Volunteering to work with others who have kidney disease
- ❒ Meeting with a social worker or other counselor
- ❒ Starting and sticking with a regular exercise program
- ❒ Meeting with a dietitian to develop a healthy meal plan
- ❒ Reading all of the modules in Kidney School
- ❒ Add your own ideas:

_____

_____

_____

_____

_____

Prioritizing your choices helps you to decide which option to start with. But setting a goal for each is crucial to seeing action. And when you write your goal out, it tends to become more real. Let's do that now with your first choice. You have the best chance of turning your intent into an action if you make a measurable goal.

Nancy: Hope and Kidney Disease

"I don't think I ever lost hope. I would become discouraged, I would become very sad. When I was young, about 21 or so, I would drive around for hours, just thinking...trying to get some rapport with God so we could talk about this. It was especially hard because I was young and wanted to be going out on dates, and the cannulas in my arm scared the boys away.

But after that period of time, I really felt grateful to have this chance to live again, so I've really tried to pay back, to work and to be a contributing member of society. My wish is that my children will learn something from what I've been through, but also that I can give people hope...help them feel lucky. I don't think of myself as a sick person, I think of myself as a healthy person with a kidney problem."

"I think attitude is extremely important. Everyone has barriers. You can climb over barriers. You can go around them. I come from a pioneer family who came to the U.S. in the 1600s...I don't think they let too many barriers get in their way! There are hard days. I have days when I want to lie around all day, but I try to make those on the weekend because I don't want to miss work!"

Here's an example of a measurable goal:

I will: Begin walking on a regular basis for exercise.

I will begin: On Monday morning at 8 a.m.

And continue: Every Monday, Wednesday, and Friday at 8 a.m.

For how long: Start with 20 minutes per outing.

Accountability: I will tell my spouse or friend about my plans and invite him/her to join me. I will also record the date, time, and distance walked in an exercise log.

Nancy: How to Keep a Positive Attitude

"I think people can get a positive attitude by seeking people out who have them. Birds of a feather flock together. If you hang around with people who whine and complain and have a bad attitude all the time, you're going to feel the same way.

If you can find people who are coping well, you can learn from them and show up at your doctor's office with a smile on your face, instead of a list of complaints. If you can do that, it cheers the doctor up a little bit and she'll have a better attitude about helping you.

I think you can also keep a positive attitude by feeling well, and you can feel better by following your diet and doing what you're supposed to do. If you have a concern about what you're supposed to do, sit down with your doctor and talk about it. It's easier if you don't fight it."

Fill in the blanks below to make your goal as concrete and measurable as possible:

I will begin: (date and time)

_____

_____

_____

And continue: (dates and time)

_____

_____

_____

For how long: (length of activity per time)

_____

_____

_____

Accountability:
(who I will tell/invite to join me)

_____

_____

_____

You may have life events that keep you from applying this goal right now, or you may need more time to work it out. Either way, the important thing is that you move toward taking action.

Usually, the longer you wait to act on a goal, the more likely it becomes that you won't act on it at all. It becomes one more good intention that falls short of helping you toward your goal. It also reinforces the thought that you can't make these kinds of changes the next time you try. Keep working at it and it will happen.

By making your goal specific, you greatly increase the chance that it will happen. Of course, you still have to choose to stay with your plan once it is made. Only you can do that. The same steps can then be repeated for each of your other goals. But we suggest that you start with one and work toward completing that one before trying the others.

Achieving a goal has many benefits. First, you see that you can do what you set your mind to, because your choices have a big influence on your outcomes. Knowing that your choices make a big difference builds confidence and encourages you to try even more new things to improve your life. And, as a result, you feel like you have more control over your life and your kidney disease!

But you may be saying, "You don't know how many times I have tried to change a behavior or set a goal, only to fail." There is no doubt that changing long-standing patterns is tough. But most goals fail because they are not specific or measurable, or they don't involve other people for accountability. If you follow the format we've suggested, and are willing to stick with it, you have the best chance of making it happen.

It's time to wrap up this module on kidneys, how they work, how they fail, and what you can do. But before we do, we want to give you a Personal Plan to help you get a start on some of the most important ideas in this module. We encourage you to put it where it will remind you of the goals toward which you're working. Turn the page to customize your Personal Plan.

Personal Plan for _____

Kidneys: How They Work, How They Fail, What You Can Do

Kidney functions (3 jobs):

1. Kidneys filter out wastes and extra fluid from the bloodstream.
2. Kidneys balance levels of chemicals in the body.
3. Kidneys produce hormones that control blood pressure, cause new red blood cells to be formed, and keep bones healthy.

Kidney failure (3 types):

1. Acute renal failure (ARF)—A sudden loss of kidney function caused by an illness, an injury, or a toxin that stresses the kidneys (kidney function may recover)
2. Chronic kidney disease (CKD)—A long and usually slow process where the kidneys lose their ability to function
3. End-stage renal disease (ESRD)—When the kidneys have completely and permanently shut down

Leading causes of CKD:

- Type 2 diabetes
- Hypertension (high blood pressure)

My Plan

A positive attitude is one key to successful living with kidney disease.

To keep a positive attitude, I am going to work on:

_____

_____

The ways that I intend to motivate myself to be positive about living with kidney disease are:

_____

_____

_____

_____

And I intend to start with my specific goal of:

_____

_____

_____

_____

Getting Answers and Taking Action

I will ask my doctor about how I can preserve my kidney function and/or my general health by showing a willingness to:

- Make eating changes
- Take prescribed medications
- Do regular exercise
- Check my blood pressure regularly
- Avoid pain pills that my doctor thinks might be harmful to my kidneys
- Make an effort to learn what I can about kidney disease

Take the Kidney Quiz!

You'll see how much you're learning if you take our quick kidney quiz. It's just 10 questions. How about it? *(Answers are on page 1-2.)*

1. The term "renal" means related to:
- a) Blood sugar
- b) Part of the eye
- c) Kidneys
- d) Cholesterol

2. The three main jobs of the kidneys are to filter out wastes and fluid, balance levels of chemicals in the body, and _____.
- a) Regulate the heartbeat
- b) Produce hormones
- c) Aid digestion
- d) Balance blood sugar

3. Healthy kidneys filter out about _____ quarts of waste and excess fluid per day?
- a) 10
- b) 2
- c) 0.3
- d) 48

4. Even small declines in kidney function can cause major health problems.
__ True __ False

5. Slowing the rate of kidney disease may involve all of the following except:
- a) Eating changes
- b) Medications
- c) Radiation treatments
- d) Avoiding certain pain pills

6. When the kidneys fail, the body fills with extra fluid and waste products. This condition is called:
- a) Uremia
- b) Hypertension
- c) Anemia
- d) Diabetes

7. Anemia (a shortage of red blood cells) starts early in kidney failure, and treatment is needed to:
- a) Protect the liver
- b) Bring more oxygen to all of your cells so you have more energy
- c) Give the kidneys a needed rest
- d) Cleanse the blood of toxins/waste

8. People with kidney failure may notice swelling of the feet, itching, and a funny taste in their mouths.
__ True __ False

9. The number one cause of kidney failure is:
- a) Accidents
- b) Type 2 diabetes
- c) Heart disease
- d) Pneumonia

10. People can live a long life with kidney disease—if they have a positive attitude, get answers, and take action.
__ True __ False

Additional Resources

In addition to the free Life Options materials you can find at www.lifeoptions.org, the resources below may help you learn more about the topics in this module of Kidney School.

PLEASE NOTE: Life Options does not endorse these materials. Rather, we believe you are the best person to choose what will meet your needs from these or other resources you find. Please check with your local library, bookstore, or the internet to find these items.

Books:

1. ***Help, I Need Dialysis!*** by Dori Schatell, MS, and Dr. John Agar
   (Medical Education Institute, 2012, http://www.lifeoptions.org/help_book, ISBN-13: 978-1937886004)
   Easy to read, fully referenced book covers the lifestyle impact of each type of dialysis–including information on what kidneys do and what happens when they fail.

2. ***A Delicate Balance: Living Successfully with Chronic Illness***,
   by Susan Milstrey Wells (Harper Collins Publishers, July 2000, ISBN-13: 978-0738203232)
   The author follows 21 people, including herself, who suffer from chronic and largely invisible illnesses. She addresses such issues as finding a diagnosis, choosing a capable and caring health care provider, traditional or alternative treatments, making sense of powerful emotions, strengthening bonds with family and friends, making career decisions, and thinking about how illness changes one's life. She also presents research on the mind-body connection and practical advice on topics such as using the internet for advice and support.

3. ***Acute Renal Insufficiency Made Ridiculously Simple***, (MedMaster Series, 2005 Edition),
   by Carlos Rotellar (MedMaster, January 2005, ISBN-13: 978-0940780095)
   A brief, clear, practical, and funny approach to acute renal insufficiency.

4. ***Dialysis: An Unanticipated Journey***, by David L. Axtmann
   (Tucky Paws Pub, January 2001, ISBN-13: 978-0970705815)
   The author was 26 years old, married, the father of two young children, and going to college when he was told his kidneys were failing. He was given the three choices all people with kidney failure must face: dialysis, transplant, or death. Axtmann shares those days of doubt and fear. He explains how he coped with low blood pressure, sleep problems, lack of energy, and even changes in his sexual needs and desires. He explains his reason for choosing dialysis over a transplant.

5. ***Chronically Happy—Joyful Living in Spite of Chronic Illness***,
   by Lori Hartwell (Poetic Media Press, October 2002, ISBN-13: 978-0972278300)
   This motivational book helps people living with chronic illness create joyful, fulfilling lives. The author, who developed kidney disease at age two, fills the book with stories about her own experiences, as well as those of others coping with chronic diseases.

Audiovisual item:

1. **A Meditation To Help With Dialysis**, by Belleruth Naparstek
   (Health Journeys; UNABRIDGED edition, May 2001, ISBN-13: 978-1881405382)
   Guided imagery designed to be listened to before, during, and after treatment to promote relaxation, ease pain, reduce fear of needles, reinforce optimism and motivation, help stabilize blood pressure, increase energy, counter depression, and support a positive outlook. Positive affirmations on side B. (Running time approx. 60 minutes)

Websites:

1. *American Association of Kidney Patients* at www.aakp.org. Find a wealth of information about kidney disease, dialysis, and transplant in English and Spanish.
2. *Kidney Trust* at www.kidneytrust.org. "About Kidney Disease" section has information about how to talk to your doctor, a CKD quiz, and the top 10 causes of CKD.
3. *National Kidney Foundation* at www.kidney.org. Calculate your glomerular filtration rate (GFR), find kidney-related news, and check out patient resources in English and Spanish.
4. *National Kidney and Urologic Diseases Information Clearinghouse* at http://kidney.niddk.nih.gov. U.S. government source of accurate kidney disease information.
5. *Renal Support Network* at www.rsnhope.org. Visit this site to find out about a Patient HopeLine, kidney advocacy, and more.