

## Getting All the Dialysis You Need

When your kidneys fail, dialysis replaces some of the work your kidneys used to do. The treatments remove some fluid and wastes that build up in your blood. To feel your best, you need to get enough dialysis.

### Your Prescription

How much dialysis you need depends on your height, weight, blood test results, and how much—if any—kidney function you still have. Your doctor will prescribe a dose of dialysis to meet *your* needs. There is no such thing as a “one size fits all” dialysis prescription.

- If you choose **hemodialysis**, your prescription will include a dialyzer (size and type), blood flow rates, and the amount of treatment time you need to achieve the desired “dose” of dialysis.
- If you choose **peritoneal dialysis** (PD), your prescription will include solution type and concentration, number of exchanges per day, and dwell times.

To get enough dialysis, you and your care team need to follow your prescription exactly. Your care team may adjust your

prescription (especially in the first few months of treatment) to make sure you are getting enough, or “adequate,” dialysis.

### Routine Testing

Your care team will do monthly blood tests to see if you are getting enough dialysis. There are two tests for tracking hemodialysis:

- **Urea Reduction Ratio** (URR). Urea is a waste product in your blood that is easy to measure using a test called *blood urea nitrogen*, or BUN. By looking at your BUN levels before and after a treatment, your care team can tell how much urea is being removed. This number is your *urea reduction ratio*, or URR. Your URR should be at least **65%**.
- **Kt/V** (kay T over V). This test uses a formula that includes dialyzer clearance (K); treatment time (t); and your body’s fluid volume (V) to measure how well your treatments are removing urea. Your Kt/V should be at least **1.2**.

There is one test for measuring the adequacy of PD:

- **Weekly Kt/V**. This test measures how much urea is removed during one week of PD. Your weekly Kt/V should always be at least **2.0**.

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## More Dialysis Keeps Athlete Running Longer

For many people on dialysis, getting the least amount of treatment is the “ideal” prescription. But for triathlete and dialysis patient Shad Ireland, longer dialysis treatment times, knowledge, and exercise are the keys to feeling great and keeping him active—active enough to set out to be the 1st dialysis patient to compete in any Ironman triathlon competition.

### A Defiant Kid

Shad, 32, was diagnosed with staphylococcal kidney disease at age 11. Despite prednisone, he continued to get worse. A biopsy found type 1 membranoproliferative glomerulonephritis (MPGN). “They thought they could contain it for 10 years or so,” recalls Shad, “But I started in-center dialysis 3 months later. They still don’t know what caused the rapid onset.”

Shad was a self-described “terrible kid” on dialysis. “I ate and drank what I wanted, I didn’t listen to my care team—I was angry,” he recalls. But the pediatric nephrologists at the University of Minnesota had a plan: for every kilo Shad gained between treatments he stayed on the machine for an extra hour. “I always had to be on for 6 hours or so since I gained 3–4 kilos each time!” he says. “Due to their aggressive treatment, I felt really good and I’m alive today.”

### Transplant Failure

In 1990, Shad received his first transplant, which rejected in 1993. “I was in a coma

for 6 weeks and dropped from 150 to 75 pounds,” says Shad. “After I woke up, I went to shave but my muscles atrophied and I fell down. I was so skinny that my bicep was the size of my middle finger and thumb put together.”

This time would prove to be a life-changing experience. “I broke down and cried, and told myself that I would never be in this kind of shape again,” he says. Determined to get fit, Shad spent 13 months recuperating on his mom’s couch, then began exercising. “I could only do two pushups—now I do 250,” he remembers. “I would feel bad after dialysis, and trying to exercise made me feel worse, but the key was to *stick with it* because eventually I felt much better.”

In time, Shad received a second transplant, but “after 2 months, I demanded they take it out. The anti-rejection meds caused pseudotumors and pain,” says Shad. “I have chosen not to take another transplant—I recommend it for others because I have seen them work well, but it just doesn’t work for me.”

### More Is Better

Since his transplants, Shad has successfully continued in-center hemodialysis with an attitude of “more is better.” “For me it’s part of my life, like breathing—I need it,” he says. “The *minimum* for me is always 4 hours. I have run 3 hours a few times, and I can feel the difference because I normally feel so healthy.”

Shad also feels that knowledge is key to success on dialysis. “I feel that success starts with being an educated patient—it challenges staff to do better,” he says. “I look at my lab values and want to know where I’m at—I always push for higher and better. My URR is in the 70s, but I’d like to see it in the 80s.”

For medications, Shad takes only RenaGel®, Epogen®, Zemplar®, iron, and a multivitamin. He puzzles physicians with his 70/40 blood pressure, but credits longer dialysis, exercise, and vigilant care. “I follow a no salt-added-diet, which means that I avoid really salty foods, but if I want a piece of pizza I have it. I also pay close attention to phosphorus and potassium,” he reports. “I drink whenever I’m thirsty but I don’t gain weight between treatments because I sweat off a lot when I exercise. I really recommend exercise: whether you’re 10 or 70, some level of physical fitness is important.”

## Exercise and Beyond

Exercising and taking care of himself have added importance for Shad since, on July 25<sup>th</sup>, 2004, he will compete in the Ironman® U.S.A. Triathlon—a race that consists of a 2.4 mile swim, 112 mile bicycle ride, *and* 26.2 mile run. “My goal is to complete the competition with a qualifying time that will enable me to compete in the world championship in Hawaii,” says Shad. “If I had enough sponsors, I would race full-time in the worldwide circuit.”

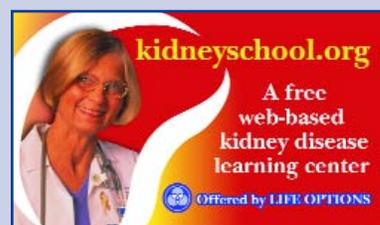
Shad is also busy finishing his college degree, and starts law school in 2005. “I believe any obstacle can be turned into an achievement,” he explains. “I feel like I am what *could* be—people on dialysis don’t have to be afraid; they can reach this level of health and wellness.”

## The Bottom Line

For Shad, raising awareness about the long-term effects of shortening treatment times is important. “I’ve been on dialysis for over 18 years, and most people don’t make it that long,” he explains. “Dialysis patients need to realize that shortening treatment has a cumulative effect—you’re shortening your life.”

In the future, Shad hopes to set up a dialysis machine in his home and dialyze 5 hours a day, every other day. “People equate dialysis with being tired, so they think shorter is better,” says Shad. “The bottom line is that getting enough dialysis allows you to live longer.” 

### For More Information on Getting Enough Dialysis...



For more information about getting enough dialysis, visit Module

10 of Kidney School: *Getting Adequate Dialysis*, at [www.kidneyschool.org](http://www.kidneyschool.org).

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## Getting All the Dialysis You Need

### Feeling Good

If you do not get enough dialysis, you may not feel well. Some symptoms you might feel include: feeling tired, ammonia taste in your mouth, poor appetite or nausea, weight loss, yellow skin color, itching, sleep problems, and swelling of your hands, feet, or face.

In the long run, not getting enough dialysis, raises your risk of hospital stays, heart disease, and even dying, from the effects of waste and fluid build-up in your system.

### What You Can Do

Healthy kidneys work 24 hours a day, seven days a week. If you are doing in-center hemodialysis, you may only be getting 12–14 hours of treatment per week, so every minute counts! With PD, every exchange counts!

Be sure to get all the treatment your doctor prescribes. Over time, it makes a difference.

How you can be sure you get enough dialysis:

- Know your prescription and track your URR or Kt/V results.
- Report symptoms to your care team.
- Know your fluid limit and follow it.
- Report any changes to your “real” weight.
- Take care of your access or PD catheter and report any problems.
- Know your fluid goals for each treatment and check to be sure they are reached.
- Be on time for hemodialysis and stay until the end of your treatments.
- Stay late, if you can, to make up for any time that is lost during dialysis.
- Do all of your PD exchanges as prescribed. 

### Getting Enough Dialysis Quiz

Now that you’ve read about getting enough dialysis, let’s see how much you’ve learned! See if you can answer the questions below (the answers are on page S8):

1. When your kidneys fail, dialysis replaces *some* of the work your kidneys used to do.  
 True  False
2. Your dialysis technician will prescribe a dose of dialysis to meet your needs.  True  False
3. URR and Kt/V are two blood tests used to see if you are getting enough dialysis.  True  False
4. If you have an ammonia taste in your mouth, you may not be getting enough dialysis.  
 True  False
5. Not getting enough dialysis causes waste and fluid to build-up in your system.  True  False

#### In Control

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