







## WHAT IS CHRONIC KIDNEY DISEASE?

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The kidneys are one of the most important organs in the body. They are responsible for cleansing the body's blood. Each day they process almost 200 quarts of blood and remove about two quarts of waste products and extra water. With a higher blood flow than the brain, the kidneys also regulate the levels of sodium, phosphorous, and potassium in your blood, making sure that the body maintains a balanced mineral content.

Each kidney contains about one million nephrons, tiny filters where the cleansing takes place. Kidney disease occurs when these filters get damaged and the kidneys cannot remove the toxins out of the blood. With more than twenty million American adults dealing with some form of chronic kidney disease, it is important for everyone to learn the signs and symptoms.

*There are five stages of kidney disease:*

#### STAGE 1

##### **Normal Kidney Function**

*(Glomerular Filtration Rate (GFR) at 90 or higher)*

The first stage of kidney disease typically shows normal kidney function but urine findings or structural abnormalities point to kidney disease.

**Kidney Fact**  
*Every 30 minutes, your kidneys filter all the blood in your body, removing waste and excess fluid.*

## STAGE 2

### **Mildly Reduced Kidney Function**

(Glomerular Filtration Rate 60-89%)

In stage two kidney disease, blood and/or urine tests reflect a mild decrease in kidney function. Despite this decrease, the kidneys have enough reserve to keep you physically active and feeling well.

#### **Physical Symptoms:**

Usually few or no physical symptoms.

## STAGE 3

### **Moderately Reduced Kidney Function**

(Glomerular Filtration Rate 30-59%)

At this stage, the nephrologist will focus on the source of the kidney problems. A work up will be performed including blood tests, urine studies, and possible diagnostic tests such as a kidney ultrasound. These tests will aide the healthcare team as they aim to slow or stop further kidney damage.

## STAGE 4

### **Severely Reduced Kidney Function**

(Glomerular Filtration Rate 15-29%)

Patients in the fourth stage of kidney disease often develop anemia, acid/base imbalances, and difficulties with potassium and phosphorous management. New medications may be added and your diet may be modified to compensate for the changing kidney function.

#### **Physical Symptoms:**

You may still feel completely normal at this stage, or you may begin to experience one or more of the following symptoms:

- Tiredness or fatigue
- Puffiness or swelling
- Decreased appetite
- Changes in urination  
(amount, color, frequency)

## STAGE 5

### **End Stage Kidney Disease**

(Glomerular Filtration Rate less than 15%)

During the final stage of kidney disease toxins and fluid may build up to levels requiring initiation of dialysis or kidney transplantation.

#### **Physical Symptoms:**

- Fatigue/Weakness
- Headache

- Nausea/Vomiting
- Skin color changes (grayish complexion, sometimes yellowish-brownish tone)
- Decreased urine output
- Metallic taste
- Swelling
- Loss of appetite
- Difficulty breathing

Each kidney is so powerful that one donated kidney can be a substitute for two failed kidneys. Keep yours healthy with exercise and a proper diet.

## GLOSSARY

### **Nephron**

The filtering and excretory unit of the kidney. Nephrons also contain the glomerulus and tubules.

### **Glomerular Filtration Rate**

A test used to check how well the kidneys are working. Specifically, it estimates how well the kidneys are filtering the blood each minute.

### **Tubule**

Small tubes that regulate water and electrolytes in the kidneys.

### **Glomeruli**

Tiny filters that filter waste from blood.

### **Creatinine**

Chemical waste molecule that is generated from muscle metabolism. Creatinine is produced from creatine, a molecule of major importance for energy production in muscles.

### **Urea**

A compound occurring in urine and other body fluids as a product of protein metabolism.

## PATIENT PORTAL

Have you signed up for the Patient Portal yet? If not, joining is very simple. Go to [www.CarolinaNephrology.com](http://www.CarolinaNephrology.com) and create an account today for a convenient way to schedule an appointment, request your medical records and much more!

**FollowMyHealth™**   
Universal Health Record

## 2015 UPSTATE KIDNEY WALK

The 2015 Upstate Kidney Walk took place on April 26th at Furman University this year. This year Karen Robertson was team captain of our Carolina Kidney Minions. We had 29 team members and raised \$4010.00. A huge thank you to all who participated and made this year's walk such a success!



## 2015 CAROLINA KIDNEY ALLIANCE



On April 25th, the Carolina Kidney Alliance, a concept conceived and developed by Carolina Nephrology and Columbia Nephrology, met for the first time. Born out of the desire to drive excellence in the care of chronic kidney disease (CKD), over 45 Nephrologists and advanced practice providers attended. As the alliance moves forward, the goal is to create better alignment with the many statewide Nephrology practices, dialysis partners and the multiple hospitals served. By these facets working together, CKD patients within the state of South Carolina will be exposed to the highest quality of kidney care available.

## OUR LOCATIONS

**Main Office**  
203 Mills Avenue  
Greenville, SC 29605

**Easley Office**  
121B Commerce Boulevard  
Easley, SC 29642

**Greer Office**  
108 W. Church Street  
Greer, SC 29650

**Simpsonville Office**  
Hillcrest Medical Office Building  
727 South East Main Street  
Suite 180  
Simpsonville, SC 29681

**DACC**  
*(Dialysis Access Care Center)*  
110 Chalmers Road  
Suite A  
Greenville, SC 29605

**Carolina Nephrology  
Kidney Wellness Center**  
110 Chalmers Road  
Suite B  
Greenville, SC 29605

**Laurens/Clinton Office**  
Plantation Plaza  
100 Plaza Circle  
Suite H  
Clinton, SC 29325

## STAFF SPOTLIGHT

### Brittany Delgado

Brittany Delgado joined Carolina Nephrology in September 2014 and is responsible for billing, coding, insurance phone calls and posting charges. The positivity of her coworkers is what keeps her coming back every morning. "I love the people that I work with, they are all amazing," she said. Now that the weather is finally warming up, Brittany cannot wait to start hiking and canoeing with her 9-year-old daughter.

### Joy Erskine

Joy Erskine joined Carolina Nephrology in October 2010. As a member of the phone room department, she schedules appointments. Joy speaks with patients regularly and loves the opportunity it provides to get to know each of them. In her spare time, Joy enjoys going to the beach, attending her son's bowling tournaments or a NASCAR race, where she cheers for Jimmy Johnson, Jeff Gordon and Tony Stewart.

## KIDNEY-HEALTHY CHOCOLATE CHIP COOKIES

### Ingredients:

- 1/4 cup palm shortening
- 1 egg (room temperature)
- 1/4 cup coconut crystals
- 2 tablespoons honey
- 2 teaspoons pure vanilla extract
- 1 1/2 cups blanched almond flour
- 2 tablespoons coconut flour
- 1/2 teaspoon baking soda
- 1/2 teaspoon sea salt
- 1/4 cup dark chocolate pieces
- 1/4 cup dairy-free chocolate chips

### Directions:

- Preheat oven to 350°F
- Place the shortening and egg in a food processor and process for 15 seconds.
- Add the coconut crystals, honey, and vanilla extract. Process again until combined.
- Add the flours, baking soda, and salt and process for 30 seconds.



Watch Dr. Blake Shusterman and his Guest Chef (and daughter) Lilly Shusterman prepare this delicious recipe at: [www.CarolinaNephrology.com/cooking](http://www.CarolinaNephrology.com/cooking)

- Scrape down the sides and pulse again if necessary to fully incorporate the dry ingredients.
- Stir the chocolate in by hand.
- Use a large tablespoon to scoop balls of the dough, placing them on a baking sheet lined with parchment paper. Lightly press down to flatten, making disks about 1/2-inch thick.
- Bake for 10 minutes, until the cookies are browned around the edges. Cool on a wire rack.

\* Recipe from *Against All Grain* by Danielle Walker

For more delicious Kidney-Friendly recipes, visit [CarolinaNephrology.com/cooking](http://CarolinaNephrology.com/cooking).