CKiD Newsletter

Volume 1, Issue 6 Winter 2014

Dear CKiD Participants and Families,

In this 6th edition of the CKiD newsletter, we have wonderful news to share with you about the study as well as recent findings about kidney disease. In early April 2013, the NIH (National Institute of Health) agreed to extend the study for another 5 years! This means that we can continue the important work of the study through at least July 2018. The study began back in 2003 so this is quite an accomplishment. **THANK YOU** to all the families who have been with us for many years, and a big **WELCOME** to those who joined the study more recently. We continue looking forward to seeing each of you as you return for your CKiD study visits.

Study Update: As of **January, 2014** over 893 children have joined the study and 875 have completed at least one study visit. We are very excited that we have reached our target goal of over 875 families in the study! Some of the children who enrolled at the very beginning have completed as many as 10 study visits. Some of the children are now young adults and are being seen at adult hospitals and clinics for their care. Others may have started dialysis or received a kidney transplant. The information we have learned from everyone's participation is valuable, and we would like to keep in touch with each of you so that we can continue to learn about chronic kidney disease in children. If you reach a time when you can no longer come in for a study visit, or if you have a kidney transplant or start dialysis, we would like to have you be a part of the study in a special way. When you get to this point, your study coordinator may ask you to fill out a brief 10 minute questionnaire once a year. This may be completed over the phone, or during your regular clinic appointment. Recently, we also made it possible for you to complete the questionnaire online if you prefer. Please ask your study coordinator for details.

Sincerely,

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Did You Know?

- **Most people have 1 – 1 ½ gallons of blood in their body. The kidneys can filter all of it as many as 400 times a day!**
- **In a lifetime, the kidneys clean more than 1 million gallons of water. That's enough to fill a small lake!**

What We're Learning From Lab Tests

One of the main goals of the CKiD study is to find a simple and accurate way to determine how well your kidneys are working. The best way to check how well your kidney is working is by measuring "Glomerular Filtration Rate" (GFR). This is a measurement of how well the filters in your kidneys are working. In the CKiD study, we use the iohexol test to do this. Iohexol is a dye which is often used for medical scans. It is removed from the body by the kidney. Even if a kidney is not working well, all the Iohexol is totally removed from your body in 24 hours. For this test we give you a small amount of Iohexol though a small needle into your vein. Then we take 3 different blood samples over a period of 5 hours. By looking at these blood samples, we can tell how quickly your kidney is getting rid of the Iohexol and calculate how well your kidney is working. While this type of GFR test is the most accurate way to measure kidney function, we know your time is valuable and it is not easy to spend 5 hours at the hospital or clinic. In order to find an easier, but still very accurate way to measure GFR, we are using other blood and urine test results to try to calculate how well your kidneys are working. Then we can compare the calculations to the iohexol GFR results to see if they are the same. These blood and urine tests are simpler to do and take a much shorter time.

One test that may help us calculate GFR measures the amount of protein in the urine. Normally urine shouldn't have any protein in it. When kidneys are damaged, instead of removing only waste, they also allow proteins (the good stuff) to pass from the blood into the urine. In the CKiD study, we have learned that a high amount of protein in the urine ("proteinuria") is related to faster progression of kidney disease. We are also using a more sensitive test to look for a specific type of protein in the urine called "albumin". Albumin is a very small protein found in blood. When kidneys are not healthy, this small protein is often the first to pass through the kidneys and into the urine.

Normal kidney function (GFR) is 100 – 120ml/min per 1.73m^2. So far we have learned from the CKiD study that children with higher amounts of protein in their urine (proteinuria) have an average kidney function (GFR) of 52ml/min per 1.73m^2. Children with small amounts of protein in their urine (microalbuminuria) have an average kidney function (GFR) of 66ml/min per 1.73m^2. CKiD children with higher amounts of protein in their urine have much lower kidney function than children with lower amounts of protein in their urine. We think testing for small amounts of protein in the urine (microalbuminuria) may be helpful in earlier detection of kidney disease. We are also hoping to find out if the urine albumin test might be useful in telling how quickly kidney disease may become worse over time. With your help and continued participation, we look forward to answering these questions very soon.

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Kid Tested, Kidney Approved!

Your kidneys can be picky eaters sometimes, but one way to help them perform their best is to give them the foods they want. Below are some recipes that will make both you and your kidneys happy, but since everyone is different, make sure to follow your kidney doctor's or nutritionist's advice to choose which foods are best for you.

Apple Cinnamon French Toast Strata (serves 12)

1 pound loaf cinnamon raisin bread, cubed
8 ounces cream cheese, diced in small cubes
1 cup apples, peeled and diced
1 teaspoon ground cinnamon
8 eggs
2-1/2 cups nondairy creamer
6 tablespoons unsalted butter, melted
1/4 cup sugar-free syrup

1) Coat a 9" x 13" baking dish with nonstick cooking spray.
2) Layer 1/2 of the cubed bread on bottom, then cream cheese cubes, then apples.
3) Sprinkle cinnamon over the apples, top with remaining bread.
4) In a large bowl, beat eggs, nondairy creamer, butter, & pancake syrup.
5) Pour over the bread mixture. Cover with plastic wrap and press down so all pieces are soaked. Refrigerate at least 2 hours or overnight
6) Preheat oven to 325° F, bake for 50 minutes, let stand 10 minutes before serving.
7) Top with syrup, jam, or applesauce, if desired.

Calories - 371, Protein - 9 g, Carbohydrates - 33 g, Fat – 22 g, Cholesterol – 200 mg, Sodium – 321 mg Potassium – 178 mg, Phosphorus – 130 mg, Calcium – 22 mg, Fiber – 1.8 g Renal/Diabetic Choices: 1 meat, 1 starch, 1 fruit, 2 fat Carbohydrate Choices: 2

Cranberry Chicken (serves 6)

1 tablespoon olive oil
1/4 cup onion, chopped
2 lbs boneless, skinless, chicken breasts
1/4 cup ketchup
1 teaspoon dry mustard
16 oz. canned whole-berry cranberry sauce
1/4 cup packed brown sugar or brown Splenda
1 tablespoon apple cider vinegar

1) Preheat oil in a large skillet.
2) Add onion and sauté until clear.
3) Add chicken and cook for 3–4 minutes on each side.
4) In a medium-sized bowl combine ketchup, dry mustard, cranberry sauce, brown sugar and vinegar. Stir until mixed and pour into skillet.
5) Cover and cook on medium heat for 15–20 minutes.
6) Serve with white rice and green beans if desired.

Calories – 346, Protein – 31 g, Carbohydrates – 42 g, Fat – 6 g, Cholesterol – 85 mg, Sodium – 248 mg, Potassium – 330 mg, Phosphorus – 242 mg, Calcium – 27 mg, Fiber – 1.4 g Renal/Diabetic Choices: 4 meat, 1 fruit, 1.5 high calorie Carbohydrate choices: 3

Deviled Green Beans (serves 4)

2 cups frozen green beans
5 teaspoons unsalted margarine
2 teaspoons mustard
1/2 teaspoon black pepper
1 teaspoon Worcestershire sauce
1 tablespoon seasoned bread crumbs

1) Prepare green beans as directed on package.
2) Make a sauce by mixing together 2 teaspoons melted margarine, mustard, pepper and Worcestershire sauce.
3) Heat in microwave for 30 seconds, then toss sauce with hot cooked green beans.
4) Mix remaining margarine (melted) with bread crumbs and sprinkle on top of beans.

Calories – 71, Protein – 1 g, Carbohydrates – 6 g, Fat – 5 g, Cholesterol – 0 mg, Sodium – 92 mg, Potassium – 131 mg, Phosphorus – 23 mg, Calcium – 30 mg, Fiber – 2.1 g Renal/Diabetic Choices: 1 vegetable, low potassium, 1 fat Carbohydrate choices: 1/2

Apple Crisp (serves 12)

5 cups apple slices
1 cup white sugar or Splenda
1-1/4 cups white all-purpose flour (divided)
1 teaspoon cinnamon (divided)
1 cup oatmeal
1 cup brown sugar or brown Splenda
1/4 teaspoon baking soda
1/4 teaspoon baking powder
1/4 cup unsalted butter
1/4 cup shortening

1) Preheat oven to 350° F.
2) Spray a 9" x 9" pan with nonstick cooking spray.
3) Combine 1 cup white sugar, 3 tablespoons flour and 1/2 teaspoon cinnamon.
4) Peel, core and slice apples. Add sliced apples to mixture and toss to coat.
5) Pour apple mixture into prepared pan.
6) Mix oatmeal, remaining white flour, brown sugar, remaining cinnamon, baking soda and baking powder.
7) Cut butter and vegetable shortening into oatmeal mixture with a pastry blender or fork.
8) Pour topping over apples and bake for one hour.

Calories – 308, Protein – 3 g, Carbohydrates – 54 g, Fat – 9 g, Cholesterol – 11 mg, Sodium – 45 mg, Potassium – 155 mg, Phosphorus – 56 mg, Calcium – 32 mg, Fiber – 2.0 g Renal/Diabetic Choices: 1 fruit, low potassium, 1 starch, 1.5 fat, 1 high calorie Carbohydrate choices: 3.5

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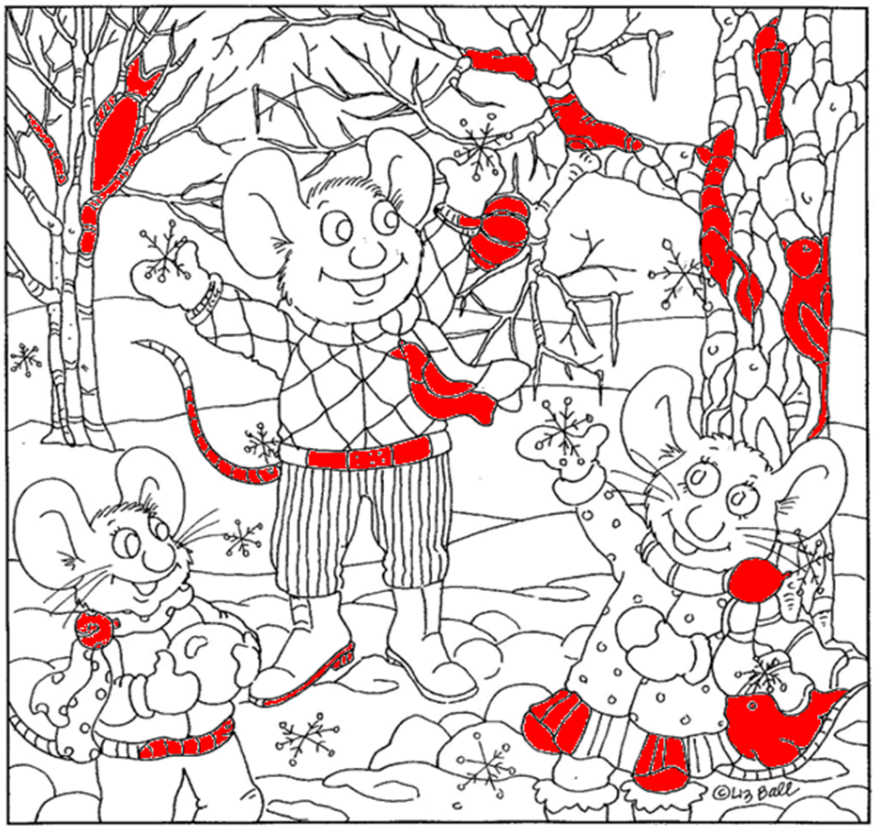
We're on the web!
http://www.statepi.jhsph.edu/ckid

Articles published from the CKiD study about lab tests:

- Fadrowski JJ, Abraham AG, Navas-Acien A, Guallar E, Weaver VW, Furth SL. Blood level and measured glomerular filtration rate in children with chronic kidney disease. Environ Health Perspect 2013;121:965-970.
- Atkinson MA, Pierce CB, Fadrowski JJ, Benador NM, White CT, Turman MA, Pan CG, Abraham AG, Warady BA, Furth SL. Association between common iron store markers and hemoglobin in children with chronic kidney disease. Pediatr Nephrol 2012;27:2275-2283.
- Schwartz GJ, Schneider MF, Maier PS, Moxey-Mims M, Dharnidharka V, Warady BA, Furth SL, Muñoz A. Improved equations estimating GFR in children with chronic kidney disease using an immunonephelometric determination of cystatin C. Kidney Int 2012; 82:445-453.
- Nehus E, Furth S, Warady B, Mitsnefes M. Correlates of resistin in children with chronic kidney disease: The Chronic Kidney Disease in Children cohort. J Pediatr 2012;161:276-280.

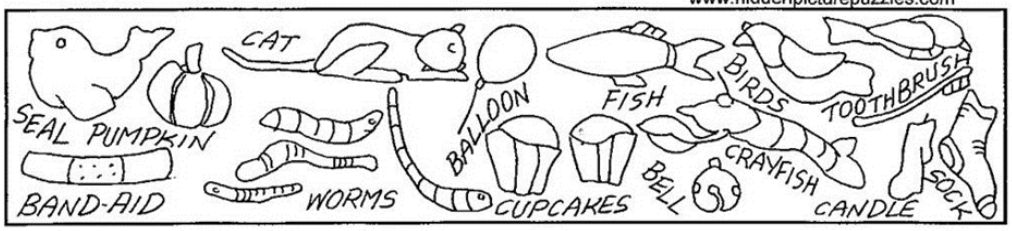
Answers to Kids Corner



Kids Corner!

(Answers can be found on page 4 of the newsletter)

Can you find the hidden objects in this picture?



Can you find 5 differences in these pictures?

Winter Mad Libs!

Once upon a time, on a (adjective) and snowy night, (pick a name) decided to build a (adjective) snowman. After (same name) went to bed, the snowman became very hungry, so he made himself a warm bowl of (name a food). Soon the snowman started feeling very (name a feeling), and fell fast asleep before he could finish the warm bowl of (name the same food). Suddenly, the snowman woke up and realized he spilled it all over himself in his sleep! He tried to (verb) it off, but it was too late, he was already melting! The next morning, when (same name) went out to play, he/she discovered the (adjective) snowman had melted! (Same name) was very (name a feeling) that his/her (adjective) snowman was gone, so he/she came up with a (adjective) plan! (Same name) got a (noun) to gather snow, and soon there was enough (adjective) snow to put the snowman back together again! The snowman was very happy to be back and from then on, he made sure to never fall asleep while eating a warm bowl of (name the same food) ever again!

The end!

Hands On Fun!

It might be getting too cold to play outside, but there are still plenty of fun things to do inside!
Below are two activities we know you'll like, so grab a parent or adult and ask them to help you get started!

How To Make Crystal Snowflakes:

You Will Need:

- A Glass Jar
- String
- A Pencil
- Pipe Cleaners
- Borax Laundry Detergent
- Food Coloring (optional)

Step 1: Cut a pipe cleaner into several pieces and twist them together to form a snowflake.

Step 2: Tie a string between the snowflake and pencil, so the snowflake hangs down.

Step 3: Boil water and pour enough in the jar so that the snowflake is covered. Make sure the jar is big enough so the snowflake does not touch the sides.

Step 4: Add Borax to the boiling water and stir till dissolved. (3 spoons to 1 cup of water)

Step 5: Hang the snowflake inside the jar and let sit overnight. By morning it will be a crystal snowflake!

How To Make Colorful Ice Tunnels:

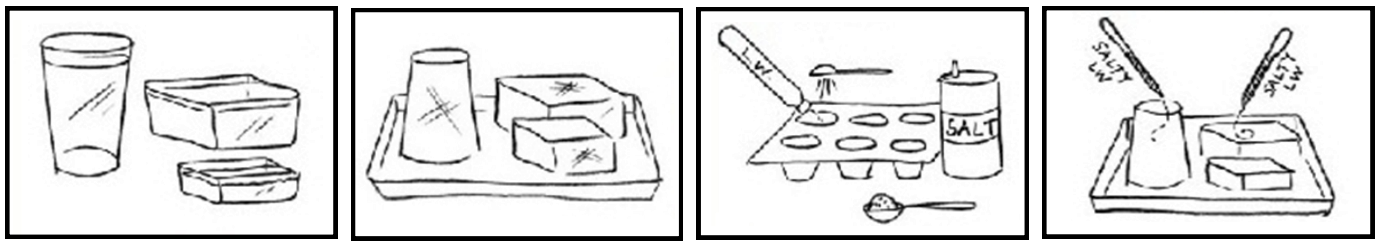
You Will Need:

- Salt
- Eyedropper
- Baking Pan
- Muffin tin or small cups
- Plastic Containers
- Food Coloring

Step 1: Freeze water in several different sized plastic containers.

Step 2: Dump the frozen ice shapes into the baking pan.

Step 3: Mix food coloring and a little bit of water in the muffin tin/small cups.

Step 4: Add heaping spoons of salt to each color.

Step 5: Drop salty colors on the ice and watch the colors melt tunnels in the ice!