CKiD Newsletter

Volume 1, Issue 5 **Winter 2013**

Dear CKiD Participants and Families,

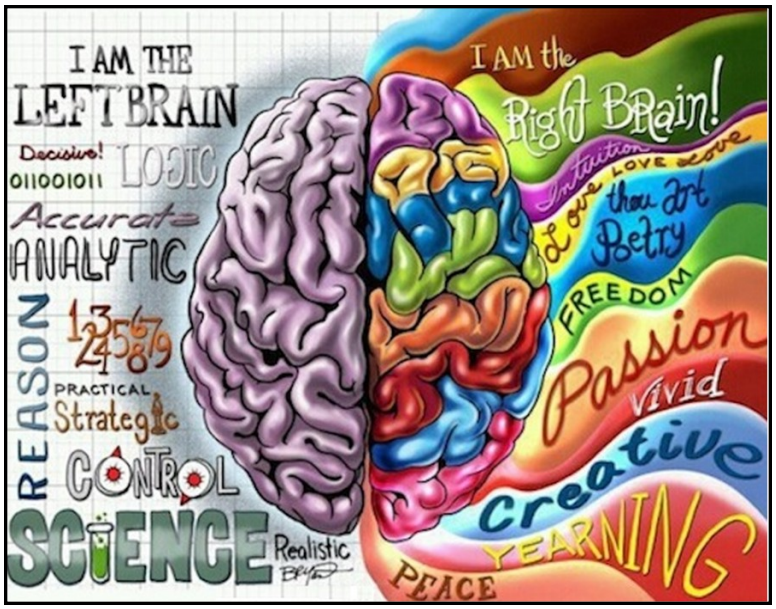
Welcome to the fifth issue of the CKiD family newsletter! We feel it's important for children and their parents to be informed about kidney disease and how it affects the body. One of the goals of this study is to look at how kidney disease affects neurocognitive function (a person's ability to think and reason), so this issue talks about the tests we use and how important it is to keep your brain healthy!

Many articles for doctors and nurses have been published in medical journals based on information from the CKiD study. Articles specifically related to brain function are on page 4. A complete list of articles can be found on the CKiD website.

Recruitment: Our goal is to enroll 880 participants by July 2013. So far, 842 participants have joined. We look forward to seeing each of you at your follow-up visits over the next several years.

What we learn from this study will guide doctors in their medical care and help families like yours in the future. We greatly appreciate your participation, as this study would not be possible without all the families and participants who have generously given us their time and effort.

From all of us at CKiD: ***THANK YOU!***



Sincerely,

Dr. Susan Furth & Dr. Brad Warady
Principal Investigators, East Coast and Mid-West Clinical Coordinating Centers

Dr. Alvaro Muñoz and Dr. George Schwartz
Principal Investigators, Data Coordinating Center and Central Laboratory

Dr. Marva Moxey-Mims
National Institute of Diabetes and Digestive and Kidney Diseases

Inside This Issue:

Your Brain	2
Recipe File	3
Brain-Related Study Publications	4
Answers to Kids Corner	4
Kids Corner Insert	

Did You Know?

- **The energy used by the brain is enough to light a 25 watt light bulb.**
- **More electrical impulses are generated in one day by the brain than by all the telephones in the world!**
- **There are about 100,000 miles of blood vessels in your brain. That's enough to wrap around the Earth 4 times!**

Your Amazing Brain

Part of the CKiD study looks at how kidney problems might affect the way the brain works. The brain is the body's control center. It controls smelling, tasting, seeing, moving and breathing. The brain also controls thinking, memory, attention, emotions, feelings, behavior and learning.

In the CKiD study children and parents are asked questions that can help us understand if kidney problems might affect thinking, memory, attention, emotions, feeling, behavior and learning.

Thinking describes **the way information is processed by the brain**. Thinking is a two part process and involves considering and then evaluating information. Even though thinking cannot be seen by the naked eye, thinking efficiency can be somewhat revealed by looking at how well someone organizes information and then uses it in planning and problem solving.

Memory is **the recall of information that has been stored in the brain**. Memory is often divided into the recall of information that has been stored for a short period of time or information that has been stored for a long period of time.

Attention is **the brain's ability to selectively concentrate, to carefully observe and to maintain focus**. Attention influences the accuracy of obtaining, processing and recalling information. Attention is influenced by a variety of factors including emotions.

Emotions and feelings are the result of how the brain interprets things that happen around us and things that happen to us. Emotions can be seen by others but feelings are private. Emotions and feelings influence thinking, memory, attention and learning.

Behavior is **the observable response** that is associated with the way the brain processes, recalls, pays attention to and interprets information.

Learning is the result of **how well the brain processes and recalls information**. Learning is influenced by memory, attention and emotions.

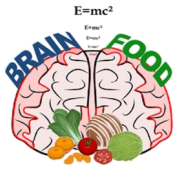
The CKiD study has found that most children and adolescents with mild to moderate chronic kidney problems think, remember, feel, behave and learn just about as well as healthy children . However, new findings suggest that approximately one-third of children have some type

of problem with how their brain is working, particularly with respect to regulation of their attention. Also the study has learned that some children with kidney problems who have consistently high blood pressure do better with language types of tasks (e.g. understanding meaning of words, stating word definitions) more so than non-language types of activities (e.g. doing puzzles, understanding charts and graphs) than their peers who do not have consistently high blood pressure. If your child is having learning or behavior problems, please talk to your child's doctors about your concerns.

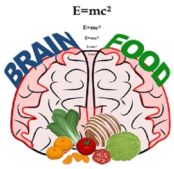
Thank you for helping the CKiD study to learn how the kidneys and brain work together. Your time and effort is helping thousands of children with kidney disease, and that's something to be proud of!

For A Healthy Brain:

- Get 8-10 hours of sleep a night and eat healthy foods. Without enough sleep or the right nutrients, your brain doesn't have the fuel it needs to be at its best.
- Exercise your brain! Just like your muscles, the more you use your brain the stronger it gets. Reading, playing music, doing puzzles, and working on art projects are all fun ways to strengthen your brain.
- Always wear a helmet when you're riding your bike, skiing, or playing sports that require head protection.



Food For Thought



Your brain is only 2% of your body weight, yet needs 20% of the calories you eat to function at its best. Research tells us that eating healthy foods can improve your memory, concentration, and overall brain function. It's important to eat the right things so you can always be at your best! Below are some recipes that are good for your kidneys and your brain, but since everyone is different, make sure to follow your kidney doctor's or nutritionist's advice.

Antioxidants: Antioxidants, like Vitamin E and C, can help boost your immune system and protect your brain cells from wear and tear. Fresh vegetables and fruits contain antioxidants, especially berries.

Strawberry Spinach Salad

- 3 cups fresh spinach
- 1 cup fresh strawberries, finely sliced
- 1 tablespoon vinegar
- 1 tablespoon lemon juice
- 2 tablespoons honey
- 1/8 teaspoon dry mustard powder
- 3 tablespoons vegetable oil

1. Wash and dry the spinach leaves. Tear into bite-sized pieces and place in a bowl.
2. Top spinach with sliced strawberries.
3. Mix together the vinegar, lemon juice, honey, mustard powder and oil.
4. Pour dressing over spinach and strawberries. Toss well and serve immediately.

Complex Carbohydrates: Complex carbohydrates can be found in whole grain food. They provide your brain with the right kind of glucose, which is the brain's main source of fuel.

Renal Safe Whole Grain Mac and Cheese

- 2 cups whole grain elbow, shell or bowtie pasta
- one 5-ounce jar Kraft® Pimento Cheese spread made with cream cheese (this keeps the sodium and phosphorus low)
- You can also add lean ground beef for protein

1. Cook noodles in boiling water without salt or butter until the noodles are al dente.
2. Drain noodles. While noodles are hot, add the pimento cheese spread .
3. Stir until cheese spread is melted into the noodles.
4. Stir in ground beef (if desired)

Omega 3 Fatty Acids: Omega 3 Fatty Acids are essential for brain growth and function, and help stabilize mood. You can find it in Salmon, shrimp, scallops, walnuts, flaxseed, and omega-3 enriched eggs and yogurt.

Citrus Salmon

- 1-1/2 tablespoons lemon juice
- 2 tablespoons olive oil
- 1 tablespoon butter
- 1 tablespoon Dijon mustard
- 2 cloves crushed garlic
- 2 dashes cayenne pepper
- 1 teaspoon dried basil
- 1 teaspoon dried dill
- 1 tablespoon capers
- 24 ounces salmon filet

1. In a small saucepan, combine all of the above ingredients except salmon. Heat to boil, reduce temperature to low and cook for 5 more minutes. This will be sauce for salmon.
2. Meanwhile, preheat grill. Place salmon, skin side down, on a sheet of foil slightly larger than the fish. Fold up edges so sauce stays with salmon on grill. Place foil and fish on grill. Top salmon with sauce prepared above.
3. Cover grill and cook for 12 minutes or until salmon is cooked. (Do not flip salmon). Cut salmon into six 4-ounce servings.

Iron: Iron can be found in red meats and dark, leafy greens. It helps concentration and memory and is essential for growth in children. Beef also contains zinc, which helps memory too.

Broccoli and Beef Stir Fry

- 4 tablespoons low-sodium chicken broth
- 1 tablespoon cornstarch
- 2 tablespoons low-sodium soy sauce
- 2 tablespoons oil
- 1/4 cup onion, sliced
- 2 cloves garlic, chopped
- 1/2 red pepper, sliced
- 3 cups broccoli flowerets
- 1/4 pound lean sirloin beef, sliced
- 3/4 cup sliced tomatoes
- 2 cups cooked white rice

1. Prepare the sauce by combining the chicken broth, cornstarch and soy sauce in a bowl, mix and set aside.
2. In a fry pan or wok heat oil and sauté the onion, garlic, red pepper and broccoli until cooked (about 5 minutes). Remove from pan and set aside.
3. In same pan add beef. Cook until beef is done to your likeness (about 5-7 minutes).
4. Add cooked vegetables, sauce and roma tomatoes to the pan with the beef. Stir and heat until sauce is thick.
5. Serve dish with 1/2 cup white rice.

Clinical Coordinating Centers:
Children's Hospital of Philadelphia
Dr. Susan Furth
Jackie Ndirangu, Jon Savant
3535 Market St, Suite 870
Philadelphia, Pennsylvania 19104

Children's Mercy Hospital
Dr. Bradley Warady
Julie Starr, Chris Smith
2401 Gillham Road, M172
Kansas City, Missouri 64108

Data Coordinating Center:
Johns Hopkins University
Bloomberg School of Public Health
Dr. Alvaro Muñoz
Judith Jerry-Fluker
615 North Wolfe St, E7648
Baltimore, Maryland 21205

Central Laboratory:
University of Rochester
School of Medicine
Dr. George Schwartz
Paula Maier
601 Elmwood Avenue, Box 777
Rochester, NY 14642

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

Articles published from the CKiD study about the brain and kidney disease:

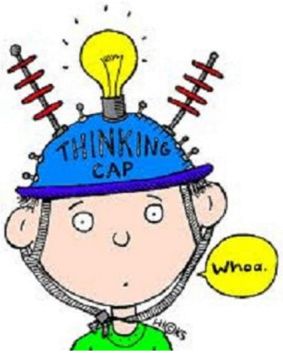
- Hooper S, Gerson A, Butler R, Gipson D, Mendley S, Lande M, Shinnar S, Wentz A, Matheson M,Cox C, Furth S, Warady B. Neurocognitive Functioning of Children and Adolescents with Mild to Moderate Chronic Kidney Disease. Clin J Am Soc Nephrol 2011; 6:1824-30.

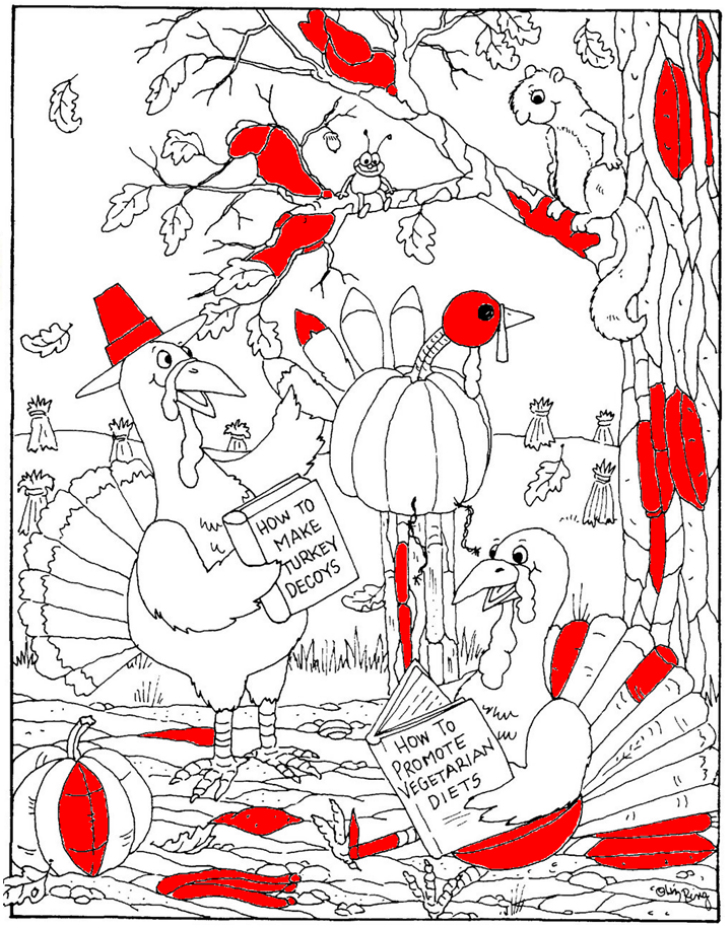
- Lande MB, Gerson A, Hooper S, Cox C, Matheson M, Mendley S, Gipson D, Wong C, Warady B, Furth S, Flynn J. Casual Blood Pressure and Neurocognitive Function in Children with Chronic Kidney Disease: A Report of the Children with Chronic Kidney Disease Cohort Study. Clin J Am Soc Nephrol 2011;6:1831-7.

- Gerson AC, Butler R, Moxey-Mims M, Wentz A, Shinnar S, Lande MB, Mendley SR, Warady BA, Furth SL, Hooper SR. Neurocognitive Outcomes in Children with Chronic Kidney Disease: Current Findings and Contemporary Endeavors. Ment Retard Dev Disabil Res Rev 2006;12:208-15.

- Gerson AC, Wentz A, Abraham AG, Mendley SR, Hooper SR, Butler RW, Gipson DS, Lande MB, Shinnar S, Moxey-Mims MM, Warady BA, Furth SL. Health-Related Quality of Life of Children with Mild to Moderate Chronic Kidney Disease. Pediatrics 2010;125:349-57.

Answers to Kids Corner





Answers to Riddles:

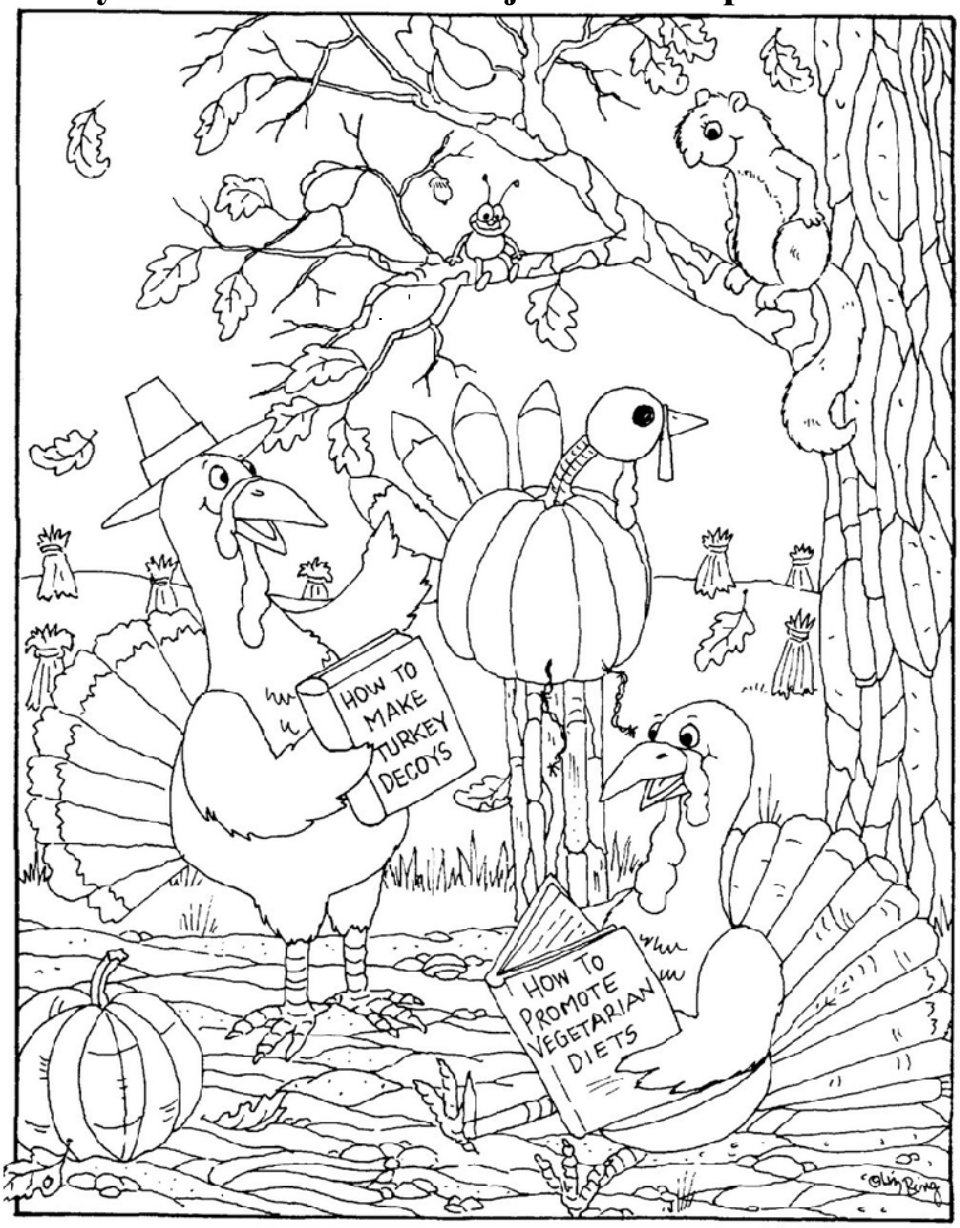
1) You throw the ball straight up in the air. When it falls, it comes right back to you.

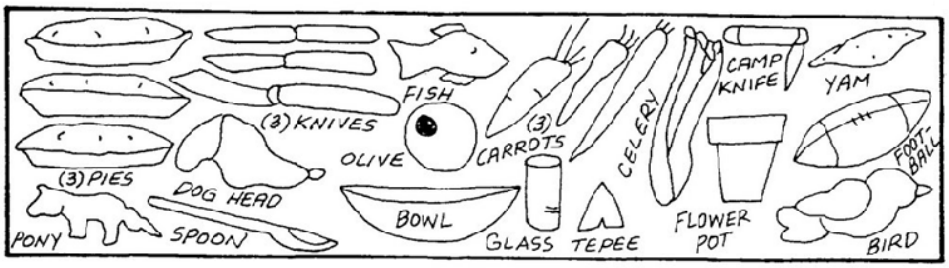
2) Your NAME belongs to you, but others use it more than you do!

Kids Corner!

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

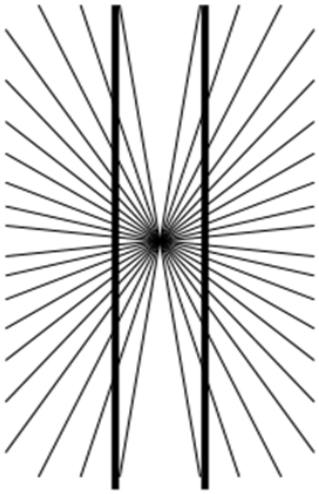
Can you find the hidden objects in this picture?



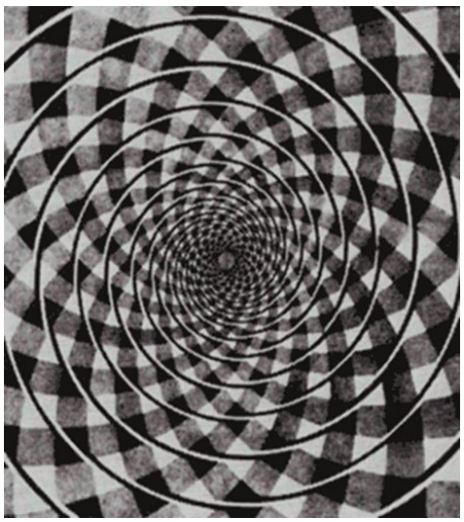


Optical Illusions!

Your eyes send information to your brain to process, but sometimes even your brain can be fooled! See for yourself with these optical illusions.



These 2 lines look like they're bent, but they're not! Hold a ruler up to prove they're actually straight.



This looks like a spiral, but if you trace the lines with a pencil, you'll discover it's just a bunch of circles!

Can You Solve These RIDDLES?

1) **How can you throw a ball as hard as you can and have it come back to you even if it doesn't hit anything, nothing is attached to it, and no one else catches or throws it?**

2) **What belongs to you but others use it more than you do?**