

Keeping Your Single Kidney Healthy

The kidneys are vital organs responsible for filtering out waste products from the blood, controlling blood pressure, and stimulating red blood cell production. Treatment for childhood cancer sometimes requires removal of one kidney (nephrectomy). Although you can live a healthy life with only one kidney, it is important that you take steps to protect your remaining kidney in order to keep it as healthy as possible.

What follow up is recommended?

- **Have a medical check-up at least yearly.** This should include a blood pressure check and urine test.
- **Have a blood test for kidney function (BUN, creatinine) and electrolytes (blood salts and minerals) at your first long-term follow-up visit** (at least 2 years after completing cancer treatment), and then a blood test for creatinine yearly. If problems are detected, follow your health care provider's recommendations.
- If you have high blood pressure, protein in the urine, or other signs of worsening kidney problems, you should have an **evaluation by a nephrologist** (kidney specialist).

What can I do to keep my kidney healthy?

- **Drink plenty of water**, especially when playing sports, while out in the sun, and during hot weather.
- **Call your healthcare provider immediately if you have symptoms of a urinary tract infection** (burning when you urinate, urinating more frequently than usual, and/or feeling an urgent sensation to urinate).
- **Check with your healthcare provider or pharmacist before taking any new medicines** (prescription, over-the-counter, or herbal). Be sure that your healthcare provider or pharmacist is aware that you have a single kidney.
- **Use non-steroidal anti-inflammatory drugs with caution.** These include pain or fever medicines (over-the-counter and by prescription) that contain aspirin, ibuprofen, acetaminophen or naproxen. These medications have been known to cause kidney damage (analgesic nephropathy), especially when taken in excessive doses or when two or more of these medications are combined with caffeine or codeine and taken over long periods of time. If you require long-term medications for management of pain, be sure to discuss the alternatives with your healthcare provider, and to choose medications that are not harmful to your kidney.
- **Physical activity, including sports, is good for your health.** Kidney injuries from sports are uncommon, and those that do occur rarely cause permanent damage or kidney loss. Overall, most physical activity poses little or no risk to the kidney and is strongly encouraged to maintain good general health. Talk with your health care provider about your kidney health to help you decide whether to participate in certain sports.
- **Serious kidney injuries are rare.** When they do occur, they are most commonly caused by car accidents, all-terrain vehicles, and falls. To protect your single kidney, always wear your seatbelt

properly when riding in a vehicle. Lap belts should be worn across the hips, not around the waist. If you are involved in an accident and a kidney injury is suspected, seek medical attention right away.

Are there any other risk factors for kidney problems?

Certain treatments for childhood cancer can sometimes cause kidney problems. These include radiation to the kidney, chemotherapy that can affect the kidney (cisplatin, carboplatin, and/or ifosfamide), or other medications that can affect the kidney (certain antibiotics or medications used for treatment of graft-versus-host disease). In addition, other risk factors that may increase the chance of kidney problems include medical conditions, such as high blood pressure or diabetes, urinary tract problems such as frequent urinary infections or back-flow of urine into the kidney (reflux), or bladder removal (cystectomy). If you have any of these risk factors, please read the related Health Link, "Kidney Health."

Written by Wendy Landier, PhD, CPNP, Children's Hospital of Alabama, Birmingham, AL.

Revised by Maki Okada, CPNP, FNP-BC, CPON®, Miller Children's and Women's Hospital Long Beach, Long Beach, CA.

Reviewed by Smita Bhatia, MD, MPH; Daniel M. Green, MD; Rebecca D. Pentz, PhD; Melissa M. Hudson, MD; Kevin C. Oeffinger, MD; Michael L. Ritchey, MD; and Josée Pacifico, RN, BScN.

Additional health information for childhood cancer survivors is available at www.survivorshipguidelines.org

Note: Throughout this *Health Links* series, the term "childhood cancer" is used to designate pediatric cancers that may occur during childhood, adolescence, or young adulthood. Health Links are designed to provide health information for survivors of pediatric cancer, regardless of whether the cancer occurred during childhood, adolescence, or young adulthood.

Disclaimer and Notice of Proprietary Rights

Introduction to Late Effects Guidelines and Health Links: *The Long-Term Follow-Up Guidelines for Survivors of Childhood, Adolescent, and Young Adult Cancers and accompanying Health Links* were developed by the Children's Oncology Group as a collaborative effort of the Late Effects Committee and Nursing Discipline and are maintained and updated by the Children's Oncology Group's Long-Term Follow-Up Guidelines Core Committee and its associated Task Forces.

To cancer patients (if children, their parents or legal guardians): Please seek the advice of a physician or other qualified health provider with any questions you may have regarding a medical condition and do not rely on the Informational Content. The Children's Oncology Group is a research organization and does not provide individualized medical care or treatment.

To physicians and other healthcare providers: The Informational Content is not intended to replace your independent clinical judgment, medical advice, or to exclude other legitimate criteria for screening, health counseling, or intervention for specific complications of childhood cancer treatment. Neither is the Informational Content intended to exclude other reasonable alternative follow-up procedures. The Informational Content is provided as a courtesy, but not intended as a sole source of guidance in the evaluation of childhood cancer survivors. The Children's Oncology Group recognizes that specific patient care decisions are the prerogative of the patient, family, and healthcare provider.

No endorsement of any specific tests, products, or procedures is made by Informational Content, the Children's Oncology Group, or affiliated party or member of the Children's Oncology Group.

No Claim to Accuracy or Completeness: While the Children's Oncology Group has made every attempt to assure that the Informational Content is accurate and complete as of the date of publication, no warranty or representation, express or implied, is made as to the accuracy, reliability, completeness, relevance, or timeliness of such Informational Content.

No Liability on Part of Children's Oncology Group and Related Parties/Agreement to Indemnify and Hold Harmless the Children's Oncology Group and Related Parties: No liability is assumed by the Children's Oncology Group or any affiliated party or member thereof for damage resulting from the use, review, or access of the Informational Content. You agree to the following terms of indemnification: (i) "Indemnified Parties" include authors and contributors to the Informational Content, all officers, directors, representatives, employees, agents, and members of the Children's Oncology Group and affiliated organizations; (ii) by using, reviewing, or accessing the Informational Content, you agree, at your own expense, to indemnify, defend and hold harmless Indemnified Parties from any and all losses, liabilities, or damages (including attorneys' fees and costs) resulting from any and all claims, causes of action, suits, proceedings, or demands related to or arising out of use, review or access of the Informational Content.

Proprietary Rights: The Informational Content is subject to protection under the copyright law and other intellectual property law in the United States and worldwide. The Children's Oncology Group retains exclusive copyright and other right, title, and interest to the Informational Content and claims all intellectual property rights available under law. You hereby agree to help the Children's Oncology Group secure all copyright and intellectual property rights for the benefit of the Children's Oncology Group by taking additional action at a later time, action which could include signing consents and legal documents and limiting dissemination or reproduction of Informational Content.