



Improving Awareness & Patient Outcomes

The Impact of Kidney Disease & Disparities in Underserved Populations

April 2023 US.NephU.D.23.00003

© 2023 Otsuka Pharmaceutical Development & Commercialization, Inc. All rights reserved.

The information provided by NephU is intended for your educational benefit only. It is not intended as, nor is it a substitute for medical care or advice or professional diagnosis. Health care professionals should use their independent judgement when reviewing NephU's educational resources. Users seeking medical advice should consult with a health care professional.



Improving Awareness & Patient Outcomes

**This program is paid for by
Otsuka Pharmaceutical Development &
Commercialization, Inc.**

**Speakers are employees and/or paid consultants of
Otsuka Pharmaceutical Development &
Commercialization, Inc.**

Speakers



Rima Kang, MD

Assistant Professor of Clinical Medicine, within
the Division of Nephrology at The Ohio State
University



Jill A. Green, PhD

Clinical & Scientific Director at Otsuka
Pharmaceutical Development and
Commercialization, Inc

Objectives

- Highlight the importance of the kidneys and preserving kidney function.
- Review the impact of kidney disease in the United States of America.
- Discuss the disparities that exist in underserved and underrepresented communities.
- Highlight the social determinants of health causing disparities within certain communities.
- Discuss ways to overcome these barriers and steps towards equitable kidney care.

Test Your Knowledge



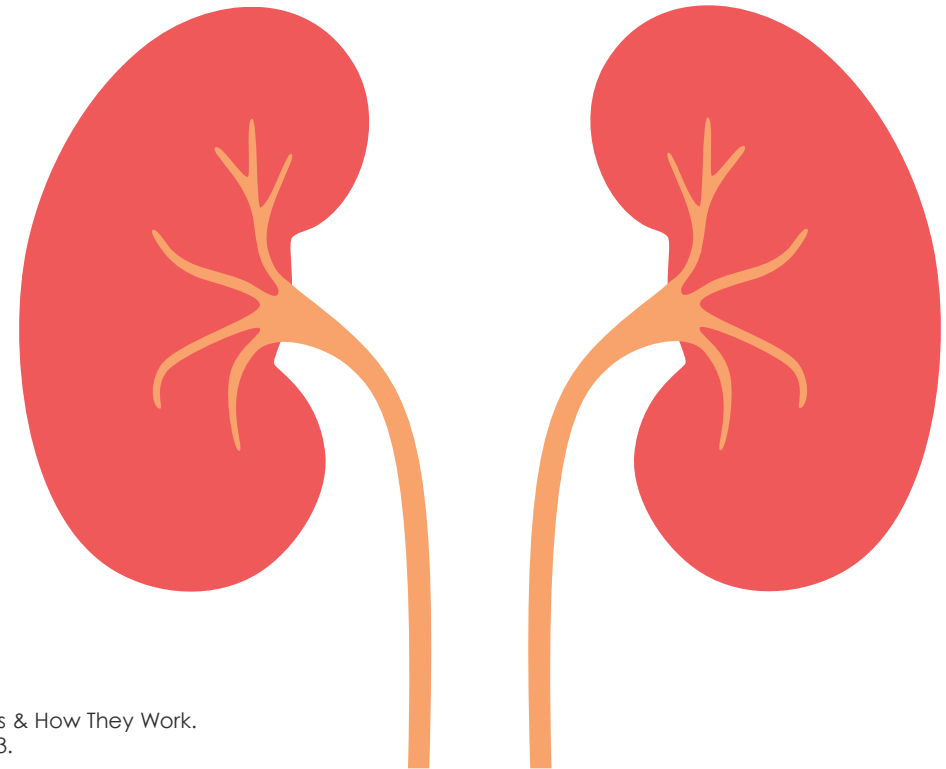
What do your kidneys do?

- A. Break down the food you eat
- B. Pass oxygen throughout your body
- C. Clean your blood
- D. Help your sleep patterns

1. National Institute of Diabetes and Digestive and Kidney Disease. Health Information, Kidney Disease, Your Kidneys & How They Work. <https://www.niddk.nih.gov/health-information/kidney-disease/kidneys-how-they-work>. Accessed on April 7th 2023.

How Do Your Kidneys Work?

- Inside each kidney are millions of small units that clean your blood
- Your kidneys give needed food to your blood and take away waste you do not need



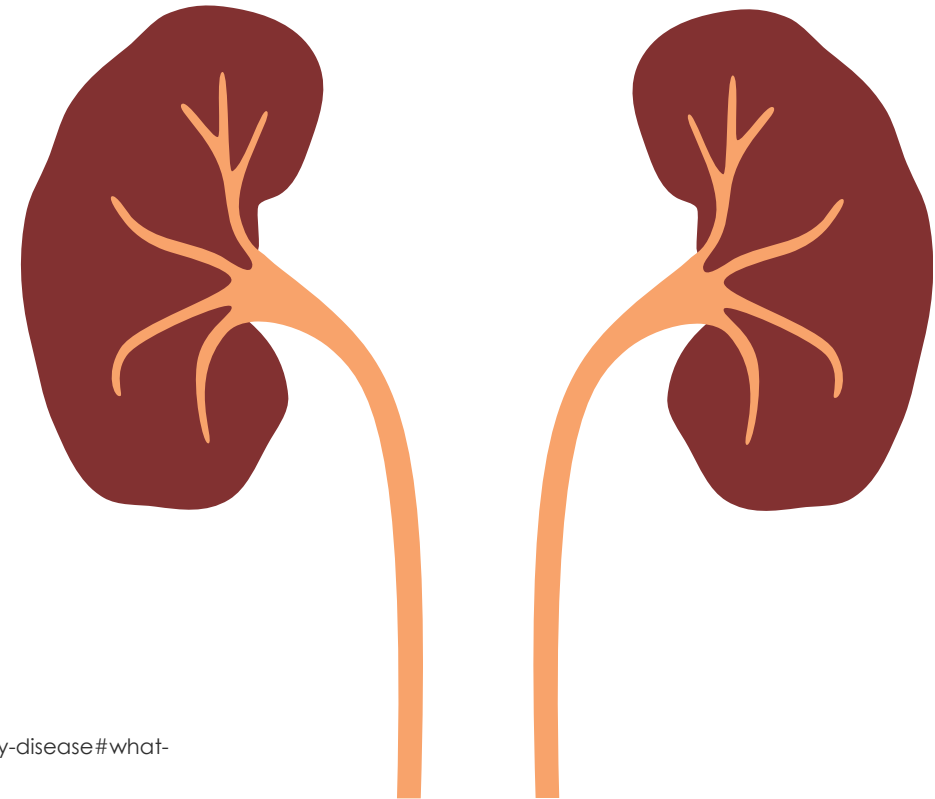
1. National Institute of Diabetes and Digestive and Kidney Disease. Health Information, Kidney Disease, Your Kidneys & How They Work. <https://www.niddk.nih.gov/health-information/kidney-disease/kidneys-how-they-work>. Accessed on April 7th 2023.

What is Chronic Kidney Disease (CKD)

When kidneys don't work as well as they should over a long period of time, this is called chronic kidney disease (CKD)

In CKD, toxic waste and extra fluid accumulate in the body and may lead to high blood pressure, heart disease, stroke, and early death.

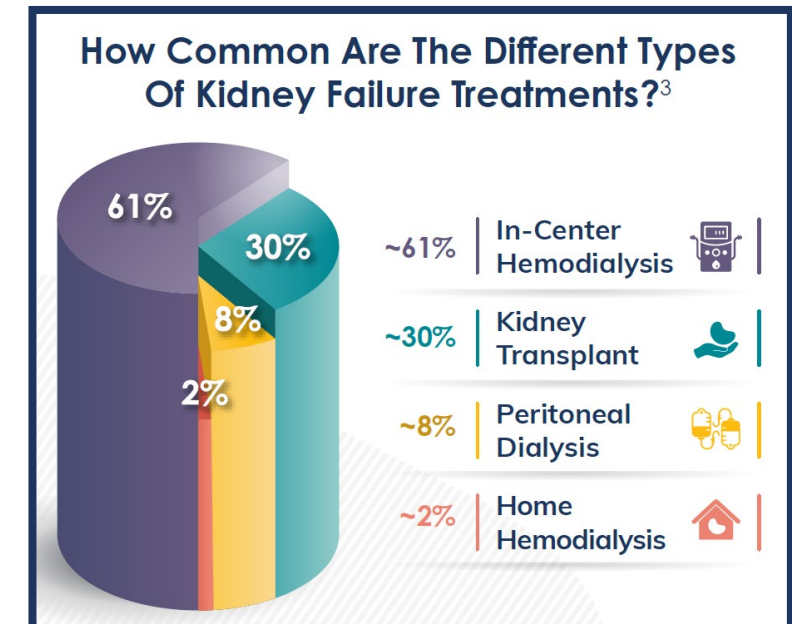
However, people with CKD and people at risk for CKD can take steps to protect their kidneys with the help of their healthcare providers.



1. National Kidney Foundation. Chronic Kidney Disease. <https://www.kidney.org/atoz/content/about-chronic-kidney-disease#what-chronic-kidney-disease>. Accessed on April 7th 2023.

The Impact of Kidney Disease in the United States?

- More than **1 in 7** U.S. adults, that is **37 million** people in the United States are estimated to have CKD¹
- As many as **9 in 10** U.S. adults with CKD do not know they have CKD¹
- CKD is a chronic condition that, for most patients, will progress to kidney failure where there are limited options.²
 - Life expectancy for a patient on dialysis is 5-10 years (although some patients live much longer)³
 - A kidney transplant offers better outcomes including quality of life, however the average wait time is 3-5 years (can be longer in various geographical regions)⁴
- High degree of **emotional burden** associated with CKD diagnosis (for example: increased rates of depression)⁵



1. "Kidney Month Infographic." NephU. February 2021 2. "Kidney Failure Treatment Modalities Infographic." NephU. December 2022. 3. National Kidney Foundation. www.kidney.org/atoz/content/dialysisinfo#:~:text=Life%20expectancy%20on%20dialysis%20can,20%20or%20even%2030%20years. 4. National Kidney Foundation, www.kidney.org/atoz/content/transplant-waitlist 5. Simões E Silva, Ana Cristina et al. "Neuropsychiatric Disorders in Chronic Kidney Disease." Frontiers in pharmacology vol. 10 932. 16 Aug. 2019, doi:10.3389/fphar.2019.00932.

Disparities that Exist in Underserved Communities

Black and Hispanic/Latino adults have a higher risk of having CKD than White adults

16%

BLACK ADULTS

14%

HISPANIC/LATINO ADULTS

13%

WHITE ADULTS

Although Black Americans make up 13.4% of the US population, they account for 30% of patients with kidney failure.

3.5x

Black Americans have 3.5x higher risk of progressing from early stages of CKD to kidney failure.

1.3x

Hispanic/Latino populations are 1.3X more likely to be diagnosed with kidney failure than non-Hispanic Americans

1.2x

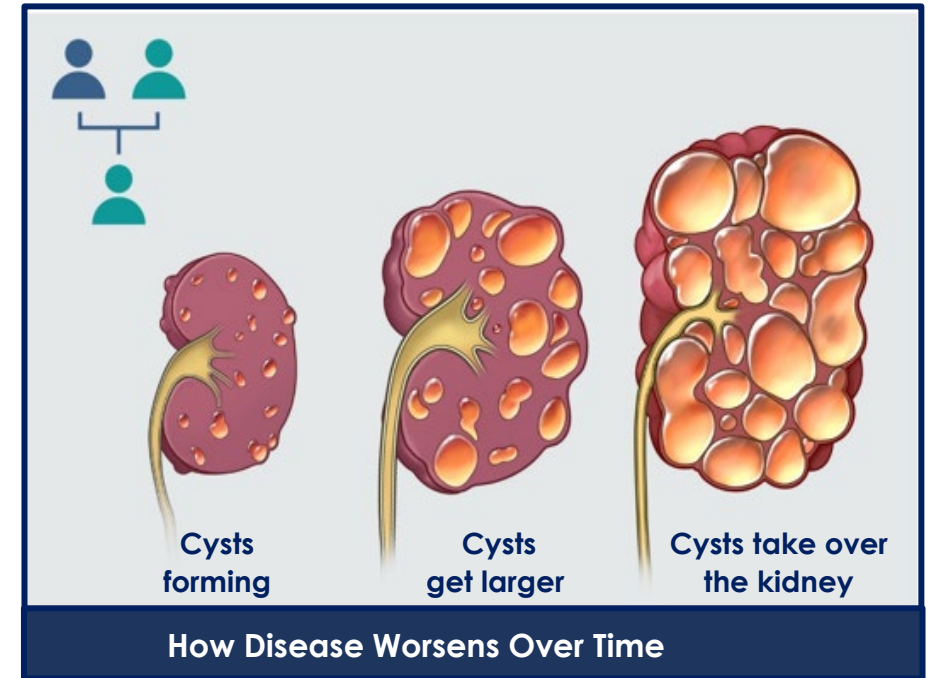
Native American Indians are 1.2 more likely to be diagnosed with kidney failure than white Americans

CKD = Chronic Kidney Disease

1. Norton JM, Moxey-Mims MM, Eggers PW, Narva AS, Star RA, Kimmel PL, Rodgers GP. Social Determinants of Racial Disparities in CKD. JASN September 2016, 27 (9) 2576-2595: <https://doi.org/10.1681/ASN.2016010027>.
2. National Kidney Foundation, www.kidney.org/atoz/content/minorities-KD

Polycystic Kidney Disease (PKD): An Overview

- Polycystic Kidney Disease or PKD is a genetic disease (can be passed down through generations in families).
- In PKD, certain kidney cells are damaged which leads to the development of multiple fluid filled sacs called cysts.
- These cysts expand over time and cause the kidneys to become large.
- Ultimately, when there are too many cysts the kidneys stop working properly. This can lead to kidney failure in people with PKD.



Did you know?



A healthy kidney is about the size of a fist



A polycystic kidney can grow as large as a football



1. Grantham JJ et al. (2011). *Nat Rev Nephrol.* 7(10):556-566.

Who gets Polycystic Kidney Disease?

There are two types of Polycystic Kidney Disease¹

1. Autosomal Dominant Polycystic Kidney Disease (ADPKD)
2. Autosomal Recessive Polycystic Kidney Disease (ARPKD)

For most people, ADPKD is inherited, or passed down, from one parent²

- If either the mother or father have ADPKD, a child has a 50% chance of getting the disease
- There are some people who get ADPKD without a clear family history; this happens to about 1 in 20 people



1. Bergmann C (2018). *Frontiers in Pediatrics*. 5:221. 2. Hateboer N et al. (1999). *Lancet*. 353(9147):103-107.

Common Signs & Symptoms of ADPKD

Symptoms of ADPKD can happen slowly. Some people don't see the symptoms until they are adults (usually between 30 and 50 years old).



Positive family history



High blood pressure



Blood in the urine



Pain in your back or side



Frequent urinary tract infections



Swelling in your belly



Enlarged kidneys



Protein in your urine

ADPKD = Autosomal Dominant Polycystic Kidney Disease

1. ADPKD Questions: About ADPKD. Diagnosis. What are the signs and symptoms of ADPKD? <https://www.adpkdquestions.com/adpkd-diagnosis>. Accessed on Dec. 10th 2021.

Disparities in the ADPKD Population

The Black American and Hispanic/Latino American ADPKD experience when compared to White Americans with ADPKD

Reach Kidney Failure

Black Americans
2–3 years earlier

Hispanic/Latino Americans
4-5 years earlier

Pre-emptive transplant

Black Americans
69% less likely

Hispanic/Latino Americans
58% less likely

Average time on the
transplant waitlist

Black Americans
13 months longer

Hispanic/Latino Americans
9 months longer

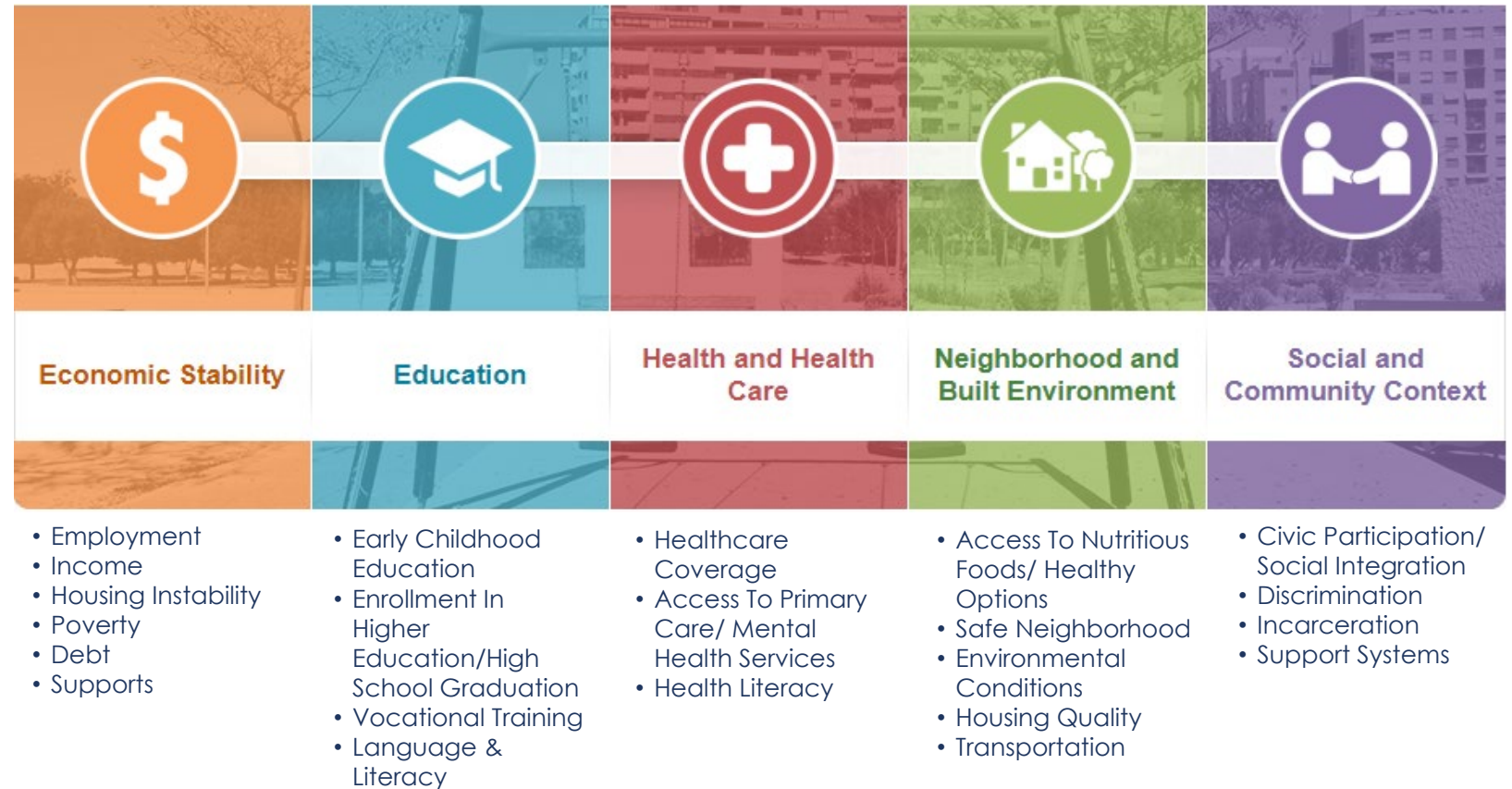
**Both Black & Hispanic ADPKD Patients Are Less Likely To Receive
Specialty Kidney Care for their Diagnosis**

1. McGill RL, Saunders MR, Hayward AL, Chapman AB. Health Disparities in Autosomal Dominant Polycystic Kidney Disease (ADPKD) in the United States. Clin J Am Soc Nephrol. 2022 Jun 20;CJN.00840122. doi: 10.2215/CJN.00840122

Social Determinants of Health: Domains & Examples^{1,2}

Social Determinants of Health (SDoH)

are conditions in the environment in which people are born, live, learn, work, play, worship, and age that affect a wide range of health, functioning, and quality-of-life outcomes and risks³



1. Office of Disease Prevention & Health Promotion (ODPHP). (n.d.). Healthy people 2020: Social determinants of health: Explore resources related to the social determinants of health. Rockville, MD: U.S. Department Of Health & Human Services ODPHP. Retrieved from <https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-health/interventions-resources>. 2. Artiga, S., & Hinton, E. (2018). Beyond healthcare: The role of social determinants in promoting health and health equality. Washington, DC: The Henry J. Kaiser Family Foundation (KFF). Retrieved from <https://www.kff.org/disparities-policy/issue-brief/beyond-health-care-the-role-of-social-determinants-in-promoting-health-and-health-equity/>. 3. Healthy People 2020: <https://www.healthypeople.gov/2020/topics-objectives/topic/social-determinants-of-health>

Social Determinants of Health and Chronic Kidney Disease (CKD)



Economic Stability¹

- Studies have shown that individuals with income above the federal poverty level have lower odds of prevalent CKD

Education

- Studies have shown having at least 1 undergraduate degree was associated with lower odds of prevalent CKD¹

Health and Healthcare²

- Using race in eGFR equations can create:
 - delays in referral to nephrology
 - delays in transplantation evaluation
 - delays in referral for kidney failure care
 - improper dosing of medications
 - lack of transparency for patients for shared decision-making

Neighborhood and Built Environment

- People with CKD experiencing homelessness are 30% more likely to develop kidney failure or die than people with CKD that are stably housed⁴
- CKD patients experiencing housing insecurity are 60% more likely to postpone needed medical care⁴

Social and Community Context³

- Kidney disease is common in incarcerated populations
- Prisoners may face a triple burden of kidney health due to excess risk of kidney disease and its risk factors, barriers to preventive care for established chronic kidney disease and suboptimal management of end-stage kidney disease

1. Nicholas S.B. et al. "Socioeconomic disparities in chronic kidney disease." *Advances in chronic kidney disease* vol. 22,1 (2015): 6-15. doi:10.1053/j.ackd.2014.07.002. 2. Novick T. et al. Diversity, Equity, and Inclusion in Nephrology. October 2020, American Society of Nephrology Virtual Kidney Week. 3. Luyckx V. et al. "The Global Burden of Kidney Disease and the Sustainable Development Goals." World Health Organization, World Health Organization, 31 May 2018, www.who.int/bulletin/volumes/96/6/17-206441/en/. 4. Novick, T and Baweja B. Housing: A Critical Contributor to Kidney Disease Disparities. *Journal of the American Society of Nephrology*, June 2022. <https://doi.org/10.1681/ASN.2022040424>

Ways to overcome barriers and steps towards equitable kidney care

- Recognize the disparities that exist and identify the barriers that are influencing suboptimal kidney care
- Empower the kidney community to talk with their family about their kidney disease and seek the care they deserve
- Expand Medicare coverage to begin earlier when a patient is eligible for kidney transplant evaluation
- Improve living kidney donation education for patients and their families to improve quality-of-life and overall outcomes

www.KidneyQuestions.com

<https://www.otsukapatiented.com>

IMPORTANCE OF KIDNEY SIZE

"What are some questions to ask my nephrologist about my kidney size?"

We know that learning more about your ADPKD diagnosis can be challenging at times, but you are not alone. Ask your nephrologist to take a close look at the size of your kidneys and number of cysts. It is crucial to monitor your kidney size because it is a predictor of disease progression for ADPKD and may grow larger over time.




To gain a better understanding and to start a conversation, ask your nephrologist the following questions at your next visit:

- Doctor, can you assess my kidney size?
- What tests are used to measure the size of my kidneys?
- How long will it take to assess my kidney size?
- When can I expect my results?

Be proactive in partnering with your nephrologist.
The questions you ask your nephrologist can change the future of your ADPKD.

For more information, visit ADPKDquestions.com.

ADPKD=autosomal dominant polycystic kidney disease.

© 2023 Shukla America Pharmaceuticals Inc. All rights reserved. June 2023

LIVING WITH ADPKD

"What are some tips to help manage kidney health?"

Follow these tips to help keep a healthy lifestyle for your kidneys:

Eat a heart-healthy diet:

What to eat	What to avoid
Whole foods, such as: <ul style="list-style-type: none">• Fruits• Vegetables• Nuts• Whole grains and high-fiber carbohydrates that are low in sodium	<ul style="list-style-type: none">• Beans• Lean protein with omega-3 fats, such as fish and eggs• Poultry <ul style="list-style-type: none">• Food or drinks that contain lots of sodium, as this may cause your blood pressure to rise• Smoking may cause your blood pressure to rise, which can cause damage to your kidneys

Exercise regularly to improve blood pressure, sleep, heart health, bone mass, and more. Make sure to check with your physician prior to engaging in exercise.

Practice relaxation techniques, such as meditation and breathing, to help reduce stress.

Drink lots of water to help suppress vasopressin, an antidiuretic hormone that stimulates cyst growth.






Pay attention to your body to stay aware of your health so you can respond quickly and correctly to any issues.

Take medications as directed by your doctor and check with your healthcare provider before you make a change.

Keep all your appointments in order to schedule and manage checkups and routine testing. Regular appointments will help you and your healthcare team keep track of your condition.

Please consult your doctor about any lifestyle or diet modifications you may need to make. For more information, visit ADPKDquestions.com.

ADPKD=autosomal dominant polycystic kidney disease.

© 2023 Shukla America Pharmaceuticals Inc. All rights reserved. June 2023

OPEN KIDNEY DISEASE

NephU™
Improving Awareness & Patient Outcomes

Education Center
Explore the latest kidney health information and educational resources developed in partnership with experts at NephU.

[View Resources >](#)

Featured Resource

Talking With Your Family and Friends
Because ADPKD is genetic, meaning it runs in families, it...

[View Featured Resource >](#)

Featured Stories
Here you'll find stories about living or caring for someone with kidney disease.

[See all stories >](#)

Length: 5:45

Guilt During the PKD Journey

Valen and her family describe the guilt they felt while traversing Valen's lifelong PKD journey.

Length: 3:35


Becoming the Inspiration I Needed

Valen shares her experiences growing up with PKD and wishing she had examples of thriving adult PKD patients who could look...

Length: 4:50

CKD: Emotional Roller Coaster

CKD can strongly affect one's mental health. Steve chronicles his emotional highs and lows as he navigated his disease.



Ways to overcome barriers and steps towards equitable kidney care

Empower patients to take an active role in their kidney care

- Recognize Warning Signs of kidney disease

Risk factors to look for include:

- Heart disease
- High blood pressure
- Diabetes
- Being overweight
- Family history of kidney disease
- Older age
- Have low birth weight



Ways to overcome barriers and steps towards equitable kidney care

Empower patients to take an active role in their kidney care

Education, Becoming Part of Your Healthcare Team, Dietary and Lifestyle Modification Tools

Work with your kidney doctor (also called a nephrologist) or your primary care provider to learn more about disease management options

Limit salt intake

Build a strong support system of family and friends

Eat more fruits and vegetables



Write down how you are feeling and questions for the doctor to discuss at your next appointment

Keep a close watch on your blood pressure

Drink more water

Exercise





Improving Awareness & Patient Outcomes

The Impact of Kidney Disease & Disparities in Underserved Populations

April 2023 US.NephU.D.23.00003

© 2023 Otsuka Pharmaceutical Development & Commercialization, Inc. All rights reserved.

The information provided by NephU is intended for your educational benefit only. It is not intended as, nor is it a substitute for medical care or advice or professional diagnosis. Health care professionals should use their independent judgement when reviewing NephU's educational resources. Users seeking medical advice should consult with a health care professional.



Improving Awareness & Patient Outcomes

Appendix: Patient & HCP resources

Otsuka's Patient Education Network (OPEN)

<https://www.otsukapatiented.com/kidney-disease>

Improving Awareness & Patient Outcomes

Featured Resource

Talking With Your Family and Friends

Because ADPKD is genetic, meaning it runs in families, it...

[View Featured Resource >](#)

Education Center

Explore the latest kidney health information and educational resources developed in partnership with experts at NephU.

[View Resources >](#)

Featured Stories

Here you'll find stories about living or caring for someone with kidney disease.

[See all stories >](#)

Length: 5:45

Guilt During the PKD Journey

Valen and her family describe the guilt they felt while traversing Valen's lifelong PKD journey.

Length: 3:35

Becoming the Inspiration I Needed

Valen shares her experiences growing up with PKD and wishing she had examples of thriving adult PKD patients who could look...

Length: 4:50

CKD: Emotional Roller Coaster

CKD can strongly affect one's mental health. Steve chronicles his emotional highs and lows as he navigated his disease.

Improving Awareness & Patient Outcomes

Education Center

The experts at NephU have partnered with OPEN to develop scientifically validated resources that explore topics about living or caring for someone with kidney disease.

- Kidney Disease & Options After Reaching Kidney Failure
- Rare Kidney Diseases & Disease Progression (PKD, IgA Nephropathy & Others)
- Mental Health Support While Fighting Kidney Disease
- Nutritional & Lifestyle Support for People Living With Kidney Disease

Find engaging infographics, delicious kidney-healthy recipes, and more!

MENTAL HEALTH
In Patients With Kidney Disease

PREVALENCE OF DEPRESSION
Depression & anxiety are common in Chronic Kidney Disease (CKD) patients and their caregivers. 1/4 of people with CKD suffer from depression.

PATIENTS & CAREGIVERS

- 1 A CKD diagnosis can create feelings of anxiety, disbelief, or denial.
- 2 Acknowledge the way you feel.
- 3 Seek support. Ignoring these feelings could lead to additional problems.

Reference:
1. Arora D. Prevalence of symptoms of depression among patients with chronic kidney. Niger J Clin Pract. 2011;15(4):480-3. <https://www.ajol.info/index.php/ajol/article/view/74573>.

Roasted Cauliflower Tacos

Ingredients

- 1 head of cauliflower, broken into florets
- 1 tablespoon of vegetable oil
- 1 teaspoon Taco Seasoning (See Separate recipe card)
- 1 teaspoon paprika
- 1/2 teaspoon cumin
- 4, 6-inch corn Tortilla shells
- 4 oz iceberg lettuce, shredded

Kidney Health Resources
Developed by NephU

Explore the latest kidney health information and educational resources developed in partnership with experts at NephU.

- Infographics
- On-Demand Videos
- Podcasts
- Kidney Healthy Recipes
- Cooking Demos
- Brochures & Discussion Guides
- Disease Overviews
- Patient & Care Partner Support

Find topics related to kidney health and tips for living or caring for someone with kidney disease.

OPEN is sponsored by Otsuka America Pharmaceutical, Inc. The information provided by the OPEN website is intended for educational benefit only, and does not represent medical advice. Speak with a health care professional about your or your loved one's symptoms and illnesses to determine diagnosis and appropriate treatment options. ©2022 Otsuka Pharmaceutical Development & Commercialization, Inc. All rights reserved.

April 2022 US CORP.X.22.00197

Like What You Learned Today? See What's Up Next!



NephU.org/events

The NephU Community
Grows Stronger When
You're Engaged.

Follow Us
@NephUCommunity










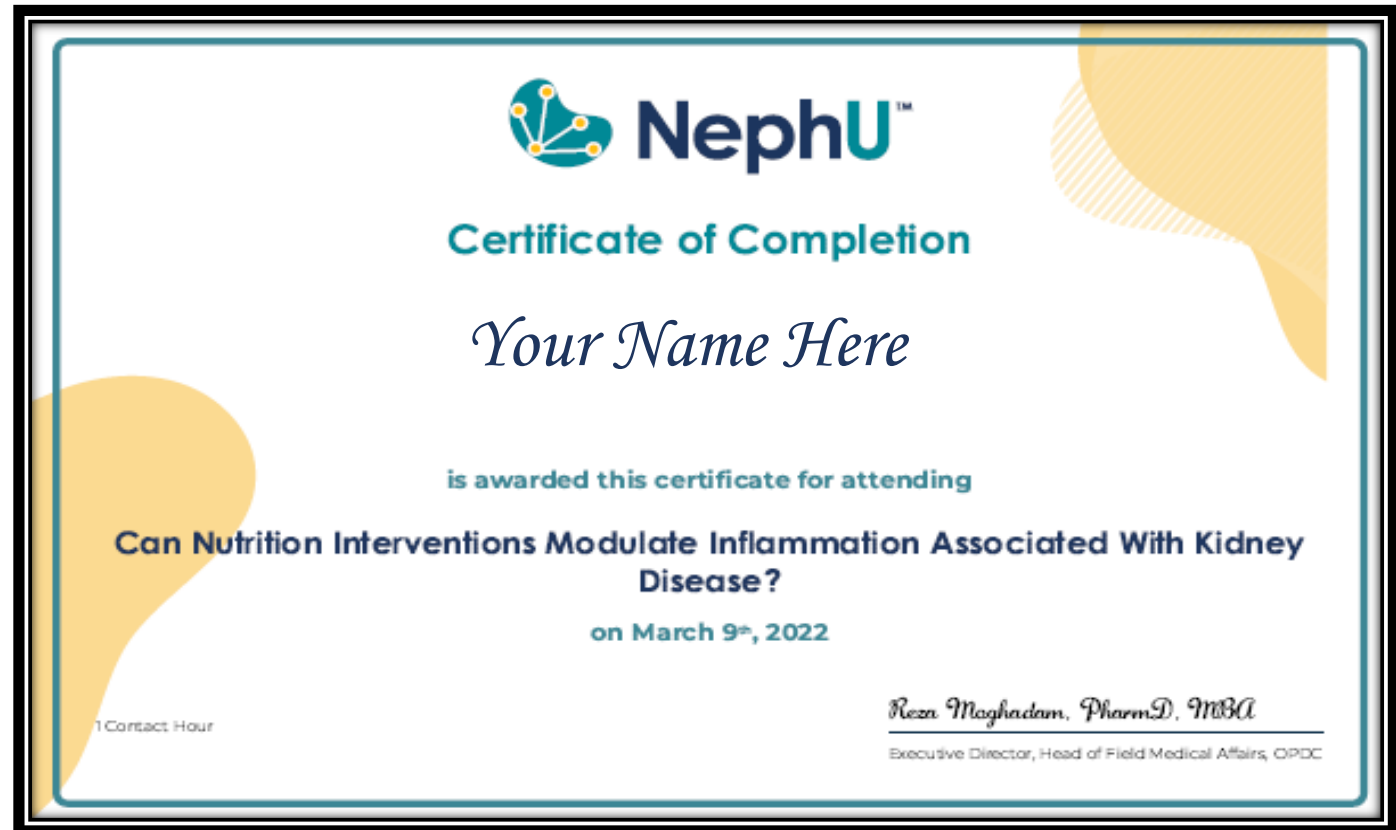
Thanks For Attending!

Don't Forget To **Download Your Certificate Of Completion** On NephU.org Under Your **Account** Within The **Accomplishments** Section



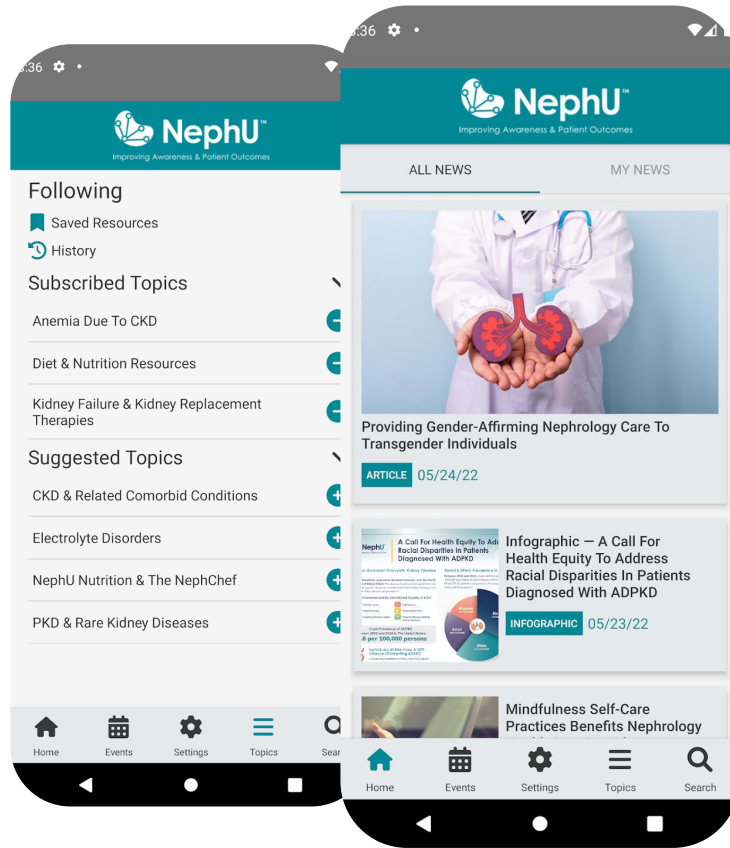
Manage Your Account

-  Profile
-  Email Preferences
-  Event Registrations
-  Reset Password
-  Bookmarks
-  **Accomplishments**
-  Log Out



Download The NephU Mobile App Today!

All of Your Resources In **One** Spot



- ✓ Videos
- ✓ On-Demand Webinars
- ✓ Podcasts
- ✓ Infographics
- ✓ Kidney-Healthy Recipes

Download the **NephU App**
from Google Play or from the
Apple App Store!