Clinical Review of Nutritional Guidelines: Persons with Renal Disease

Marcella A Wright, DNP, MS, RN
Director of Care Coordination and Lean Consulting
HealthTech
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The Role of the Kidney's

- Filter Blood
- Remove Waste
- Regulate Blood Pressure
- Maintain Balance of Water and Salts
- Red Blood Cell Production

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What is Kidney Disease?

Acute Kidney Injury (AKI)
- Sudden Decline in Kidney Function
- Often Reversible

Chronic Kidney Disease (CKD)
- Progressive loss of Kidney Function
- Long-term conditions

End Stage Renal Disease (ESRD)
- Final Stage of CKD
- Prolonged and Severe Kidney Damage

Liu, M., Da-Sol, K., & Park, S. (2025). Gene–Lifestyle Interactions in Renal Dysfunction: Polygenic Risk Modulation via Plant-Based Diets, Coffee Intake, and Bioactive Compound Interactions. *Nutrients*, *17*(5), 916. https://doi.org/10.3390/nu17050916

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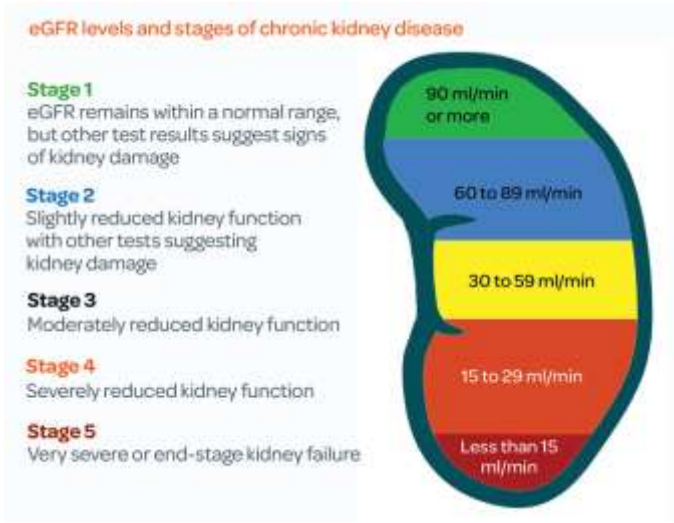
Review of Glomerular Filtration Rate (GFR).



NKF Fact Sheet

https://www.ncbi.nlm.nih.gov/books/NBK499861/

https://www.kidney.org/sites/default/files/01-10-8374_2212_patflyer_egfr.pdf

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Acute Kidney Injury (AKI)

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Chronic Kidney Disease (CKD)

Leads to Waste and Fluid Buildup

Gradual Worsening	Common Causes: Diabetes, Hypertension	Early Phase = Asymptomatic	Fatigue, Edema, Frequent Urination, Difficulty Concentrating

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VARIOUS HEALTH PROBLEMS

COMMON, INCREASES WITH AGE

PREVENTION, LIFESTYLE CHANGES

TREATMENT, MANAGE SYMPTOMS

The Concern of CKD

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End Stage Renal Disease (ESRD)

Kidney Failure
Permanent Loss of Function

Diabetes and Hypertension, Genetic Disorders	Fatigue, Edema, Shortness of Breath	Life Threatening Requires Dialysis or Transplant	Life Altering Dietary and Fluid Intake

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The Concern of ESRD

- **Fluid Retention**
- **Electrolyte Imbalance**
- **Cardiovascular Disease**
- **Significantly Shortened Life**

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What Role Do You Play?

Prevention

- Primary Medicine
- Coordinate Care

Early Intervention

- Nephrology Referral
- Manage Diabetes and Hypertension

https://www.ncbi.nlm.nih.gov/books/NBK499861/

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What is Your Role?

Nurses	Pharmacists	Dietitians
Direct Patient Care	Managing Medications	Pre-ESRD Diet
Educate Patient and Family	Appropriate Doses, Potential Interactions	ESRD Diet

https://www.ncbi.nlm.nih.gov/books/NBK499861/

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What about Diet and Nutrition

Western-Style Diet

- Low-GFR
- Highly Processed Food
- Saturated Fat Intake (Fast Food)
- Less Variety and Fruits/Vegetables

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Mafra, D., Borges, N. A., Bengt, L., Shiels, P. G., Pieter, E., & Stenvinkel, P. (2021). Food as medicine: targeting the uraemic phenotype in chronic kidney disease. *Nature Reviews.Nephrology, 17*(3), 153-171. https://doi.org/10.1038/s41581-020-00345-8

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Role of Diet and Nutrition

Plant-Based Diet

- Lower Risk Renal Dysfunction
- Moderate Coffee Intake
- Potential Protective Effects
- High Vegetable Protein=Less CKD

Liu, M., Da-Sol, K., & Park, S. (2025). Gene–Lifestyle Interactions in Renal Dysfunction: Polygenic Risk Modulation via Plant-Based Diets, Coffee Intake, and Bioactive Compound Interactions. *Nutrients, 17*(5), 916. https://doi.org/10.3390/nu17050916
Carrero, J. J., González-Ortiz, A., Avesani, C. M., Bakker Stephan, J. L., Vincenzo, B., Chauveau, P., Clase, C. M., Adamasco, C., Espinosa-Cuevas, A., Molina, P., Karine, M., Piccoli, G. B., Post, A., Siren, S., & Fouque, D. (2020). Plant-based diets to manage the risks and complications of chronic kidney disease. *Nature Reviews.Nephrology, 16*(9), 525-542. https://doi.org/10.1038/s41581-020-0297-2

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Plant-Based Diet Further Research

- Patient Preferences
- Risk of Hyperkalemia
- Quality of Life
- Risk of Graft Failure
- Metabolic Complications

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Hypertension

- >130/80, Elevated
- <120/80, Normal

Accurate Blood Pressure Measurement

- Multiple Readings Prior to Diagnosis

Initial Pharmacotherapy Recommendations

- ACE Inhibitors, ARB, Calcium Channel Blockers

Hypertension and Renal Disease

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Blood Pressure Categories

Blood Pressure Categories

American Heart Association.

BLOOD PRESSURE CATEGORY	SYSTOLIC mm Hg (upper number)		DIASTOLIC mm Hg (lower number)
NORMAL	LESS THAN 120	and	LESS THAN 80
ELEVATED	120-129	and	LESS THAN 80
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 1	130-139	or	80-89
HIGH BLOOD PRESSURE (HYPERTENSION) STAGE 2	140 OR HIGHER	or	90 OR HIGHER
HYPERTENSIVE CRISIS (consult your doctor immediately)	HIGHER THAN 180	and/or	HIGHER THAN 120

heart.org/bplevels

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47.3% US Population

Lifestyle and Environment

Educate and Manage

The Crisis of Hypertension

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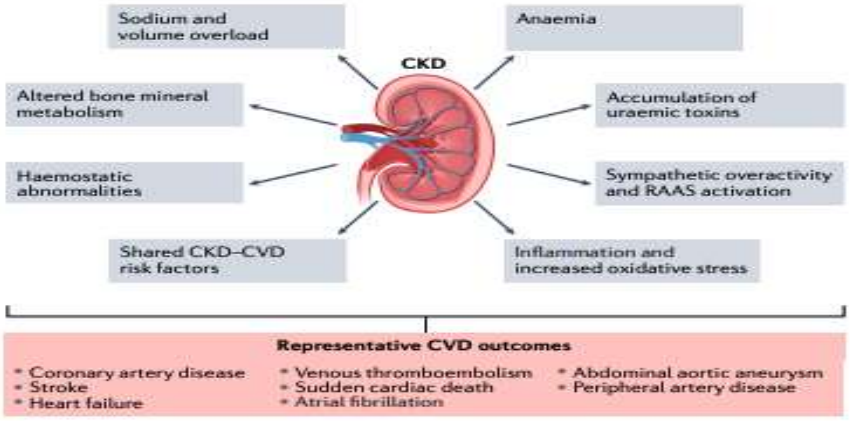

Representative Renal - CVD Outcomes

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Cardiovascular /Renal Connection

Poor Medical Adherence

Heart Failure ⇔ CKD

Kidney Tamponade

Khan, N. N., Zurayyir, E. J., Alghamdi, A. M., Alghamdi, S. F., Alqahtani, M. A., Abdalla, E. M., Jurays, N. S., Alassiri, A. M., Alzahrani, H. A., & Althabet, A. A. (2024). Management Strategies for Hypertensive Crisis: A Systematic Review. *Cureus*, *16*(8)https://doi.org/10.7759/cureus.66694
Bonacchi, G., Rossi, V. A., Garofalo, M., Mollace, R., Uccello, G., Pieragnoli, P., Checchi, L., Perrotta, L., Voltolini, L., Ricciardi, G., & Beltrami, M. (2024). Pathophysiological Link and Treatment Implication of Heart Failure and Preserved Ejection Fraction in Patients with Chronic Kidney Disease. *Biomedicines*, *12*(5), 981. https://doi.org/10.3390/biomedicines12050981

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Quality of Life and The Kidneys

- Kidney Disease Quality of Life (KDQOL)
- Disabling Symptoms
- Social and Dietary Restrictions
- Psychological Distress
- High Healthcare Costs

2025 TASNIM, T. *et al.* Health-related quality of life and its predictors among chronic kidney disease patients: A hospital-based cross-sectional study. **PLoS ONE**, *[s. l.]*, v. 20, n. 2, p. 1–20, 2025. DOI 10.1371/journal.pone.0319100.

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Thank you

Questions?

Marcella.wright@health-tech.us

Cell: 307-760-0441

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