

YOUR KIDNEY SAY BE MINDFUL OF YOUR FOOD

A Practical Guide to Protecting Kidney Health
Through Better Choices



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Preface

Kidney disease is emerging as a silent threat, quietly affecting millions, as its early signs often go unnoticed. It belongs to a group of conditions that remain hidden until significant damage has already occurred.

As a healthcare professional, educator, and someone deeply committed to public well-being, I've seen firsthand how small lifestyle changes—especially in nutrition—can make a powerful difference in both managing and preventing kidney-related health issues.

This book was born from a simple realization: many people genuinely want to protect their kidneys or slow the progression of kidney disease but don't know where to start. The internet is overflowing with information, much of it conflicting or wrapped in complex medical jargon. Even the most motivated individuals can feel lost.

My goal is to change that.

I've been keeping an eye on new developments in modern medicine, and I've also seen how Ayurveda, with its holistic approach, may help people heal from problems that are hard to treat with regular medicine alone. This book has information that might help people who have or are at risk of renal disease.

This book is for you if you have kidney disease, are taking care of someone who does, or just want to avoid future health problems. It combines scientific knowledge with useful tips for everyday life, giving you the power to take charge of your health, one smart choice at a time.

Above all, I hope this book gives you power, not from fear, but through knowledge. Because when it comes to your kidneys, being alert, taking steps to avoid problems, and eating the appropriate foods may really transform your life.) ending, leaving readers with a sense of fulfillment and joy.

Introduction

When you hear the word "diet," what comes to mind?

For most people, it's weight loss, strict meal plans, or giving up certain foods and adding others – possibly for life. And honestly, it's not your fault. Our understanding of "dieting" has been shaped by quick-fix trends, social media, and incomplete or misleading information.

But here's the truth: **your diet isn't just about weight or disease control—it's about health, energy, and longevity**, especially when it comes to your kidneys. Kidney disease is on the rise. Recent studies have shown that a large number **of Indian adults** are living with chronic kidney disease (CKD). Even more concerning is that these numbers continue to climb – driven by lifestyle-related factors, poor diet, and lack of awareness. But there's good news: your daily food choices can make a real difference. This book will guide you through practical, easy-to-follow tips for better eating habits and show how small changes can protect your kidneys and improve your overall health. You don't need to overhaul your entire life. You just need to understand your body, your needs, and how to make food your greatest ally. So, whether you're managing CKD, supporting a loved one, or simply safeguarding your future, this book is your starting point towards a healthier, more empowered life.

Let's begin...

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SECTION ONE

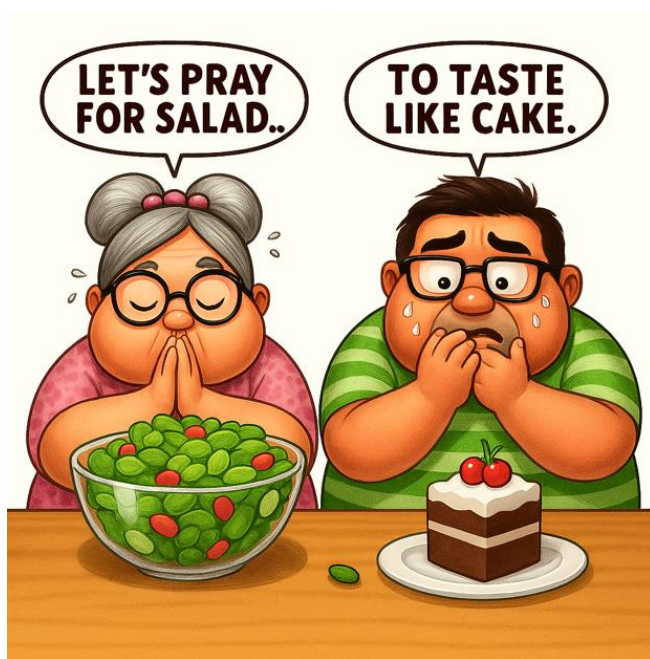
Understanding Diet and Nutrition

What Does ‘Diet’ Mean for a Normal Person?

Whenever you hear the word "diet," What is the first thing that pops into your mind?

Try to be honest!

Is it weight loss, strict meal plans, or giving up your favorite foods forever? For most people, it is one of these. And even if that is not entirely accurate, it's completely understandable — because that's what we've been taught to believe.



Most of what we know about "dieting" hasn't come from textbooks or experts. It has been picked up from bits and pieces here and there. Most often from sources that don't give the full picture. And with so much information out there,

it's hard to tell what's reliable. Be honest — how much of your knowledge about dieting is derived from trending advice, reels, or posts on social media? Most likely, whatever you believe is based on the knowledge you've acquired over time. But wait — some of you might think of healthy eating as a way to stay fit and prevent disease. And you're right. But let me tell

you — there's even more to it than that. You might be surprised to know that it's both simpler and more expansive than you think! Your diet includes everything you eat and drink every single day—whether it's a home-cooked meal, a quick snack grabbed on the go, or even that irresistible slice of cake or sweet treat you reward yourself with—everything counts. Yes, your every single bite, your sip and your choice matters! And here's the curious part—Isn't it strange? Food is a big aspect of our life. It's part of our routines, our joys, and our memories. But how often do we really stop and think about it? People have a peculiar habit of ignoring things that are most familiar to them, even when they need on them the most. Take a moment to think about it. We often take for granted the things that feed us, keep us alive, and make us feel better. For example, food is constantly there, quietly doing its function. But when did we really notice it last? Did you like that it was there? Thought about what it meant? We hardly ever stop to wonder: What exactly are we eating? How was it grown? What happens to it during cooking? And what happens to our food when we eat it? These questions make us more conscious of the food that gives us energy and affects our health. It's strange, isn't it? We rarely think about our daily choices until something goes wrong. A bout of constipation, a sudden spell of loose motion—and suddenly, we're reminded of how much our bodies depend on the things we usually ignore. Pain has a way of snapping us into awareness.

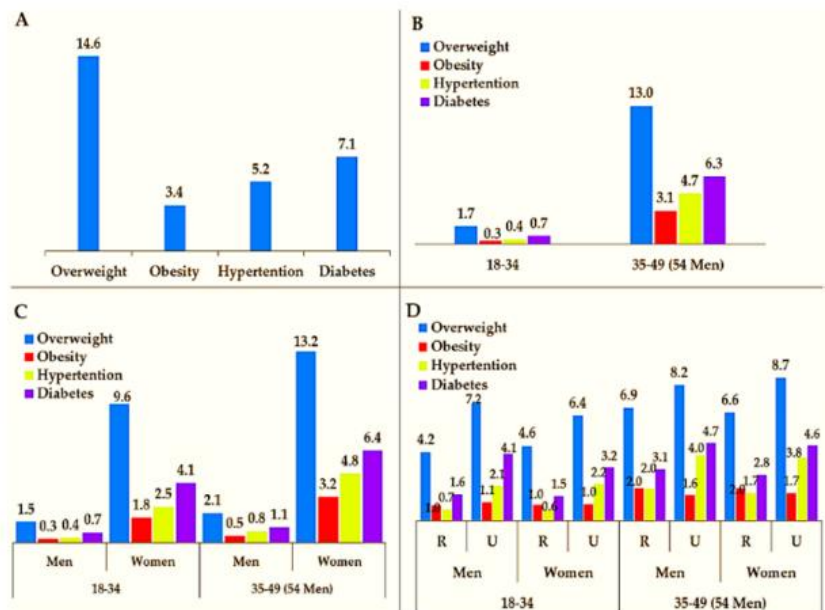
And here's the truth: Food is more than simply fuel; it's also information. Every bite tells your cells what to do to develop, heal, or deal with stress. That piece of cake could make you happy right now, but over time, the choices you make again and over again will either help your organs or put stress on them. Your gut isn't just a tube that breaks down food; it's a living ecosystem. There are trillions of bacteria in it that affect not only digestion but many more things like your mood, immunity, and metabolism. Yes, it all depends on how your body digests and ingests the food. When you have problems like bloating, feeling sluggish, or unexpected bathroom drama, your body is trying to tell you that something is wrong. Now, you might be wondering, "Okay, but why should I care about all this?"

Good question! Here's why:

A national study on the prevalence of Overweight, Obesity, Hypertension, and Diabetes in India revealed eye-opening findings¹:

The national prevalence of overweight, obesity, hypertension, and diabetes among adults by (A) disease/condition, (B) age group, and (C) age group and sex. (D) age group, sex, and residence. The prevalence presented in percentages.

¹ Vishal Vennu, Tariq A. Abdulrahman, and Saad M. Bindawas, "The Prevalence of Overweight, Obesity, Hypertension, and Diabetes in India: Analysis of the 2015–2016 National Family Health Survey," *International Journal of Environmental Research and Public Health* 16, no. 20 (October 2, 2019), <https://doi.org/10.3390/ijerph16203987>.



Reproduced from Vennu V., Abdulrahman T.A., Bindawas S.M. (2019). "The Prevalence of Overweight, Obesity, Hypertension, and Diabetes in India: Analysis of the 2015–2016 National Family Health Survey." *International Journal of Environmental Research and Public Health*, 16(20), 3987.

The findings of this study unequivocally indicate that India is experiencing a nutrition-related health crisis. Overweight is the most common condition in the country, followed by diabetes, high blood pressure, and obesity, which are all on the rise. These results weren't just data; they were a warning. The researchers underlined the urgent need for coordinated preventative measures across the country – involving governments at all levels, NGOs, healthcare professionals, and communities – to alter how we approach diet, lifestyle, and health.

And here's where it gets personal.

Because the truth is – these conditions don't just affect national statistics. They affect you. Me. Your family. Our future. Chronic kidney disease (CKD) has become a leading cause of death and contributes to around 35.8 million disability-adjusted life-years globally². The prevalence of CKD among the Indian population has been found to be increasing every year.

Now it's clear: knowing what you eat, how it's broken down, and how it affects your body isn't just useful—it's the first BIG step toward better health. And if you're managing a kidney condition, this awareness becomes not just helpful, but vital. So, buckle up! Eye-opening facts and practical tips are just ahead—and trust me, once you understand what's really happening on your plate, you'll never look at your food the same way again.

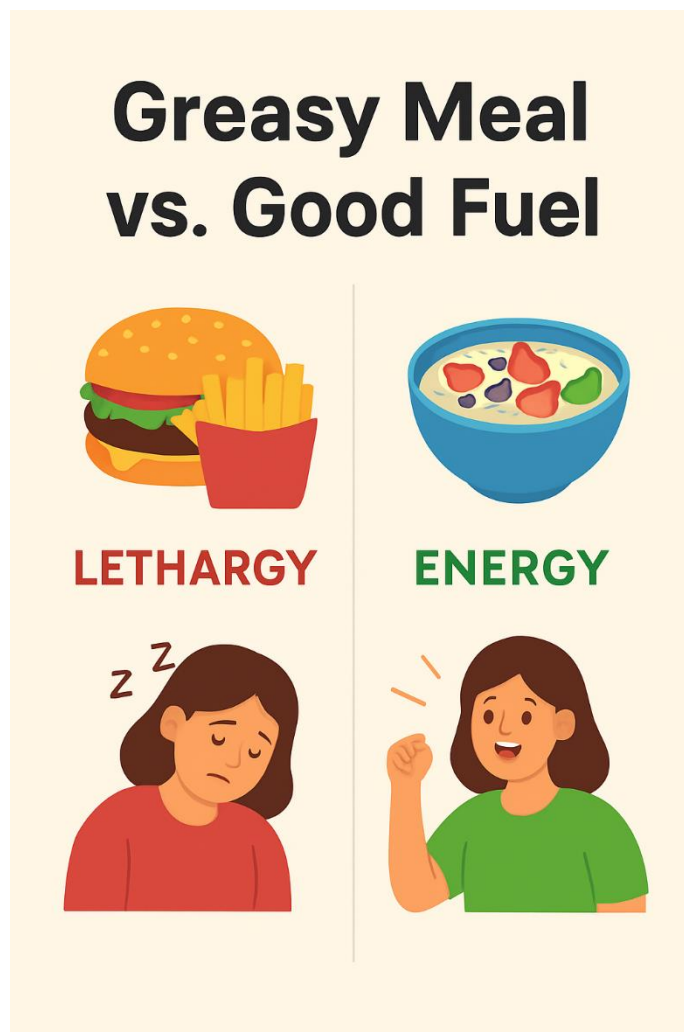
Now, let's make things easier to understand.

In a simpler way, you can think of it this way – our bodies are like high-performance machines, and food? Well, food is our premium fuel. Just like a car can't run smoothly on the wrong fuel, our bodies also need the right mix of nutrients to stay energetic, healthy, and strong. If you feed a race car junk, it coughs, sputters, and breaks down. And guess what? So do we!

² Boris Bikbov et al., "Global, Regional, and National Burden of Chronic Kidney Disease, 1990–2017: A Systematic Analysis for the Global Burden of Disease Study 2017," *The Lancet* 395, no. 10225 (2020), [https://doi.org/10.1016/S0140-6736\(20\)30045-3](https://doi.org/10.1016/S0140-6736(20)30045-3).

Now, let's bring this closer to home with some other real-life examples.

Have you ever noticed how a heavy, greasy meal makes you feel extremely lethargic? Or how you seem to have endless energy after a type of breakfast? That's not a coincidence — that's your body reacting to the quality of fuel you're giving it. So, next time you sit down to eat, ask yourself: "Am I filling up with the good stuff that will keep my engine humming?" Get ready because we're going to examine what this "good stuff" actually looks like in daily life!



Food as Fuel: How Our Diet Affects Daily Life?

Before we go any further, let's take a quick look at how a few people eat day to day. They're just like us. One of them may even remind you of yourself. You might be surprised by the contrast, and it might even motivate you to change your plate.

Aman and Diya are coworkers who share the same office and work the same hours.

Aman's mornings are a familiar story. The alarm rings, but his bed feels too comforting to leave. After a few rounds of snoozing, he finally drags himself out. Now, he is behind schedule. This is the daily story—there's no time for a proper breakfast. He grabs whatever is quick: maybe a cup of coffee or a stuffed paratha, or just something from a roadside stall on his way to work. Some days, he skips breakfast altogether.

By mid-morning, his energy hits the lowest levels. He feels sluggish and reaches for a sugary snack, something to keep him awake. It works for a little while, but the crash comes soon after. As lunchtime approaches, hunger turns into irritation. He is tired, distracted, and just wants to eat—fast. So, he grabs whatever is available, not really thinking about nutrition or balance. It is not that he doesn't care; he's just caught in the rush, like so many of us.

He doesn't even feel better after lunch; instead, he feels tired and short on energy again. A lot of readers will probably nod in agreement as they remember their own post-lunch meltdowns. *Now comes the real question – why does this happen?*

Because his body did not receive balanced nutrition it needed to sustain his energy levels and support his daily functions.

Much like a machine requires the right kind of fuel to perform efficiently, our bodies need a proper balance of nutrients to function at their best.

On the other hand, Diya, a mother of two school-going kids, starts her day with breakfast. Her breakfast includes a bowl of oats with vegetables, soaked nuts, and a glass of milk. In her office, she is always found energized, focused, and ready to take on the day. That is because she gives her body the right mix of carbohydrates, proteins, and healthy fats etc. to keep her going for a longer time.

This example shows how the food we eat affects our mood, energy, and health in general. But let's be clear: Diya's meals aren't the best example or something everyone should do. The most important things are how much she eats, when she eats, and how she puts those meals together.

That's what makes the real difference.

Nutrition isn't just about gulping down all nutrient-dense foods, regardless of whether your body needs them or not. Excess nutrients will either be stored or go to waste. The ideal approach is to eat according to your body's actual needs.



Understanding a Balanced Diet

By now, it's clear that what you eat is only part of the story.

The real game-changer is how balanced your diet is. Skipping meals or eating whatever's convenient isn't the solution. Your body isn't just looking for food—it's asking for the right mix of nutrients, delivered consistently, day after day. That steady supply is what keeps your energy stable, your mood in check, and your health on track.

You wouldn't just use bricks to build a house, would you? You would also use cement and other things. In the same way, your body requires all the nutrients to stay strong, full of energy, and work at its best. A balanced diet consists of all the nutrients. Each one is important for keeping your body's internal systems working efficiently.

Do you want to know what you need to stay healthy?

Let's dive in and explore them one by one!

SECTION TWO

Nutrients and Their Impact on the Body

Carbohydrates - The Main Energy Source



The very name “carbohydrates” hints at their composition—hydrated carbon compounds, or carbon structures bound to water molecules. But carbohydrates are far more than a simple pairing of carbon and water.

Carbohydrates are chemical molecules that are important for giving living things energy. They are not merely a basic mix of carbon and water. They exist in different forms, like simple sugars (glucose, fructose) and complex carbohydrates (starch, fiber, glycogen). Each one has a distinct job in the body. So yes, the term “hydrates of carbon” makes sense in terms of language, but the biological story goes much deeper and complicated. The body gets most of its energy from carbohydrates. They are necessary for the brain to work, for metabolism, and for general health. If we talk about what they are formed of, carbohydrates are made up of carbon (C), hydrogen (H), and oxygen (O) atoms, usually in the ratio of 1:2:1 (like glucose: $C_6H_{12}O_6$). There are two main types of carbs: simple carbs, like the sugar in fruits and candies, which give you fast energy, and complex carbs, like rice, bread, and oats, which provide you energy for a long time. Carbohydrates are the body's principal source of energy, exactly like petrol is for a car. You may find these carbs in meals like rice, bread, potatoes, fruits, and cereals. They give us energy right away and over time to keep us running all day.

Have you ever noticed how you feel when you skip breakfast? Of course, you must have. You not only feel low, but you also feel grumpy, slow and hard to focus. That's because your body doesn't have enough energy. Your body needs energy to start the day after not eating all night. You know that a bowl of whole-grain cereal and a banana can provide you with the energy you need to go through the morning. An athlete getting ready for a marathon doesn't just get up and start running. The night before, they eat a meal high in carbs and protein, such as pasta or muesli, to make sure they have the energy to do well. Just like sportsmen need the correct kind of nutrition to be ready for a game, how we use that fuel is just as important. And that makes me think of another question I had as a kid... As kids, we often wondered, "Why do we always have to eat slowly and chew our food well?" It may have appeared like a straightforward order that didn't mean much at the time. But there is a scientific rationale for it: digestion really starts in the mouth. It may sound strange, but it's true. Chewing is not just a way to make food easier to swallow; it is the first step in breaking down food so that the body can digest and absorb it. When you chew your food properly, the digestive enzymes in your saliva may start to break it down, which makes the whole process work better. Many people might be surprised to hear this, but it's true. As soon as we eat something with a lot of carbs, like bread, rice, or fruit, our saliva starts to work. It has an enzyme called salivary amylase that starts breaking down starch into simpler sugars right away. The body takes these carbohydrates into the blood.

Now, what happens when we gulp down food in a hurry, especially when we're extremely hungry? If we don't chew our meal well, it doesn't mix well with salivary amylase. This means that most of the complex carbs don't change, which makes it much harder for the stomach and intestines to break them down. The food doesn't break down easily and sits heavily in the stomach, which might make you feel bloated, uncomfortable, and slow to digest. So, the next time you're in a hurry to eat, remember that chewing thoroughly is the first and easiest way to help your digestion! So, it is always a good idea to follow the old advice to chew your meal well. It's the first step towards better digestion.

What happens next? When carbs break down into glucose (sugar) and get into your blood, your pancreas releases insulin, which is a hormone that unlocks your cells so they can take in glucose for energy. Yes, this is the role of insulin in your body. Some of this glucose is used right away to fuel your body—whether it's for walking, thinking, or even breathing! But this is where you need to realize how smart your body is: it doesn't just use up all its energy at once. Instead, it stores some of it as glycogen in your liver and muscles, which is a good thing to do. This way, your body always has a backup source of energy ready to go when you need it. You use this energy when you're working out, studying late at night, or even between meals. Isn't it cool? Isn't that amazing? Let's have a look at another situation, have you ever eaten a lot of pasta before working out? You might not experience an immediate energy boost, but as your body digests the food, it slowly releases glucose, which keeps you going strong. But here's the twist: if you eat more

carbs than your body requires, the extra glucose doesn't just go away. It turns into fat and is kept for later. That means that too many carbs might also make you gain weight, not only fat. This is why it's important to have balance. So, that means you can feel weak and exhausted if you don't eat enough carbs, but you can also gain weight if you eat too many. Now, the next time you eat a whole-grain sandwich or a banana before working out, know that you're giving your body the appropriate kind of nutrition. This genre assures readers that no matter what challenges the characters face, love will conquer all. A typical romance novel follows a well-defined structure, starting with the introduction of the protagonists, often setting the stage for their first meeting or initial conflict. As the story progresses, the characters' relationship evolves, marked by moments of attraction, tension, misunderstandings, and eventual resolution. The climax of the novel often revolves around a significant event or revelation that threatens to keep the couple apart, but this is followed by a resolution that brings them together. The genre's hallmark is its promise of a "happily ever after" (HEA) or "happy for now" (HFN) ending, leaving readers with a sense of fulfillment and joy.

Smart carb choices = steady energy and better health!

Proteins - The Body's Building Blocks



Have you ever thought about what maintains your body healthy, heals your wounds, and supports your muscles? That's what proteins can do! You can think of them as the building blocks of your body. They operate behind the scenes to fix tissues, help you grow, and keep everything functioning properly. You may also think of proteins as the workers who also build things within your body. They are always fixing, reconstructing, and keeping everything from your skin to your muscles in good shape. Mind it, if you don't get enough protein, your body could feel weak, take longer to repair, or even lose muscle mass. Please remember, you give your body the energy it needs to be strong and energetic every time you eat eggs, meat, fish, beans, dairy, or tofu, even if you don't know it. And here's something more interesting: proteins also come in different kinds! Some are complete proteins, which means they have all the amino acids your body needs to work properly. Chicken, fish, eggs, and dairy are some examples of foods that fit within this group. Others, like beans, nuts, and grains, are incomplete proteins, meaning they lack one or more essential amino acids. So, does that mean being vegetarian isn't good? Not at all! Vegetarians need not worry—there's a simple trick to getting all the essential amino acids. And guess what? You're doing it without even thinking about it! You can make a complete protein supply by mixing different

plant-based proteins, like grains and beans or peanut butter on whole wheat toast. A vegetarian diet can be equally as healthy and high in protein if you eat the correct combination of foods. So, the next time you consume a meal high in protein, keep in mind that you're providing your body's repair crew the energy it needs to be strong, healthy, and ready for anything! Let's look at one more example to assist us understand this. If you've just worked out hard at the gym or are healing from an injury, your body needs protein to fix and build muscle. That's why people who love working out have their protein drinks after they work out, and doctors often recommend people who are healing from surgery or an accident to eat foods high in protein. Getting enough protein is important for everyone, whether you're an athlete, a growing child, or just someone who wants to stay active. It keeps your body strong, healthy, and ready for everything that comes your way! We've read enough about how important proteins are. Now let's go deeper and find out what's really going on! What makes us strong? How do they work inside us? What do people mean when they say they are "the building blocks of life"? Let's take a closer look at the science behind these important nutrients. What are proteins and how are they utilized in our body? You must have seen the kids building different shapes using blocks. Amino acids are also like small LEGO blocks that fit together in different ways to make different kinds of proteins. Proteins are different from carbohydrates and lipids because they are made up of carbon, hydrogen, oxygen, nitrogen, and sometimes sulphur. But how does the body really use these proteins? The answer is: it all starts with digestion. Eating a

lot of protein, like a boiled egg or a bowl of lentils, gets your digestive system going. When food gets to your stomach, digestive enzymes like pepsin start to break down proteins into smaller fragments called peptides. When they get to the small intestine, enzymes like trypsin and chymotrypsin break them down even more into amino acids. The walls of the intestines then take these amino acids into the blood, which takes them to other regions of the body where they help build muscle, manufacture enzymes, and even make your immune system stronger. Another way to think about it is that amino acids are the bricks that keep our bodies sturdy and working by repairing and building new walls. Your body is always busy breaking down the food you eat, taking in the nutrients, and putting them to use. This keeps you strong, healthy, and full of energy every day!

work at its optimum, our body requires the correct kinds of fats!

How does your body digest and use fats?

The next question is what happens to the fats you eat? The mouth is where digestion starts, but the true magic happens in the small intestine. When you eat foods high in fat, your gallbladder releases bile, which works like a detergent to break down big fat molecules into small droplets. Lipases, which are enzymes created by the pancreas, can break down these fats more easily into glycerol and fatty acids. The lining of the intestines absorbs these pieces once they are broken down and sends them into the bloodstream, where they can flow to other parts of your body. Some of them are used immediately once for energy, but others are stored in fat cells for later. But fats do more than give you energy; they also help your body manufacture hormones like testosterone and estrogen, which are very crucial for mood and metabolism. Yes! this is real, believe it or not. You might be asking why the body stores fat in the first place since it causes so many difficulties. Well, storing fat is a way for your body to stay alive by making sure it has a backup energy source when it needs it. And the amount it is storing is in your hands.

Now, imagine you're heading out on a long road trip. Wouldn't you keep some extra fuel in your car's tank, just in case? That's exactly how fats work in your body! They act as a backup energy source when your body runs low on carbohydrates. On the other hand, storing a large amount of fat is taxing for the body.

Now, here's something that will help us make the right choices when selecting fats and oils—because not all fats are created equal! Some fats are good for us because they provide us energy, help cells work, and even help us absorb vitamins. But what about the rest? They can be more harmful than helpful. The most important thing is to choose the right fats to eat. Why not choose something healthier, like avocado toast, instead of deep-fried snacks? These options not only give you energy, but they also help you feel better overall. So, don't be afraid of fats; simply pay attention to the type and amount you eat, and your body will thank you!

Vitamins- Types, Functions, and Cooking

Precautions



Vitamins got their name from "vital amines." These are essential nutrients that our bodies need in small amounts to function properly. Despite their tiny quantities, they play a massive role in keeping us healthy. Do you know the role tiny spark plugs play in an engine? Yes, they keep the engine running smoothly. Vitamins are also like this; they don't provide you energy like carbs or proteins do, but they do help with important things like immunity, growth, vision, and healing. There are two main types of vitamins: fat-soluble (such Vitamins A, D, E, and K) and water-soluble (like Vitamin C and B-complex). Water-soluble vitamins dissolve in water, thus the body doesn't store them and you need to eat them every day. Fat-soluble vitamins, on the other hand, are absorbed with dietary fats and stored in the liver for later use.

Now, let's speak about what they are made of. Vitamins are organic substances, which means they include carbon, hydrogen, and oxygen in them. In some situations, they also have nitrogen and sulphur. Water-soluble vitamins are quickly absorbed in the intestines and go straight into the bloodstream. Fat-soluble vitamins, on the other hand, need bile acids from the liver to be absorbed and are stored in fat cells. When the skin is exposed to sunlight, it makes Vitamin D, also known as the

"sunshine vitamin." Did you know that Vitamin D supplements are recommended to be taken with a meal that contains fat? That's because fat enhances its absorption! Every system in the body needs vitamins to work properly. Vitamin C is a strong antioxidant that helps wounds heal faster and stimulates the immune system. It is present in citrus fruits like oranges and lemons. That's why people tell us to drink orange juice when we're sick: it helps our bodies fight against illnesses! Vitamin A, found in carrots, supports good vision (ever heard that carrots help you see better at night? That's because of Vitamin A!).

B-complex vitamins help convert food into energy, making them essential for people who feel constantly fatigued.

Keep in mind that vitamins are fragile and can break down or be lost when you wash, prepare, or cook food. Vitamin C and B-complex vitamins (B1, B2, B6, B12, folate, niacin, and others) are water-soluble. Because they dissolve in water, they are very easy to lose when meals are cleaned, soaked, or boiled. Let's find out how and why this happens.

Example:

- When you rinse or soak chopped vegetables for too long, a portion of their vitamin's leaches into the water.
- If you boil spinach or broccoli in too much water, a lot of Vitamin C can be lost.

Some vitamins break down when food is cooked at high temperatures or for long periods of time. This indicates that they are not stable when subjected to heat. When you boil or sauté vegetables, vitamin C might break down quickly since it is particularly sensitive to heat. If you heat cereals and meats too much, the B vitamins in them can go away.

Example:

- Stir-frying vegetables for a short time preserve more Vitamin C compared to boiling them.
- Overcooking rice can reduce its B-vitamin content.

Some vitamins break down when they come into contact with oxygen (oxidation) or sunlight. Vitamin A and Vitamin C are very easy to oxidize. When riboflavin (Vitamin B2) is in direct sunshine, it breaks down.

Example:

- Cutting fruits and leaving them exposed to air reduces their Vitamin C content.
- Storing milk in transparent containers under bright light can destroy riboflavin.

Let's discover how to keep vitamins safe:

- Be smart when you wash fruits and vegetables: Don't soak vegetables for too long; just rinse them off immediately.
- Don't use a lot of water while you cook. Instead of boiling, you can steam, roast, or sauté them.
- Cook at lower temperatures for shorter times – This helps retain heat-sensitive vitamins.
- Store food properly – Keep vegetables in the fridge and protect dairy from direct light.
- Consume fresh produce – The fresher the food, the higher the vitamin content.

We can get the most out of our meals and keep as many nutrients as possible by making tiny changes to how we prepare and cook food!

Minerals- Absorption, Functions, and Enhancers/Inhibitors



Minerals are not like carbs, proteins, and lipids, which provide you energy. Your body can't make minerals on its own. You can only get them from the food you eat, and they are necessary

for many biological activities.

You can think of minerals as tiny workers inside your body. Each with a specific job:

- Calcium strengthens bones and teeth.
- Iron helps transport oxygen in the blood.
- Potassium keeps your heart beating at a steady rhythm.
- Magnesium supports muscle and nerve function.
- Zinc boosts immunity and speeds up wound healing.

Just like a house needs bricks, cement, and metal to stand strong, your body relies on minerals to build and maintain its structure. Now, this raises the need to understand where minerals come from. Have you ever heard the phrase, "You are what you eat?" This is true and the answer to the question raised above is because everything you consume determines what is going to enter your bloodstream and nourish your body. Minerals come mostly from plants, like vegetables, fruits, nuts, seeds, and whole grains. These things take minerals from the earth.

- Plant sources – Vegetables, fruits, nuts, seeds, and whole grains absorb minerals from the soil.

- Animal sources – Meat, fish, dairy, and eggs contain minerals derived from plant-based foods consumed by animals.

- Water – Some drinking water sources are rich in minerals like calcium, magnesium, and fluoride.

For example, eating a spinach salad with cheese and almonds gives you iron, calcium, and magnesium, which are all very good for your health. You might be wondering, "If I eat foods high in minerals, do they automatically work in my body?" Not quite! It's interesting how minerals get from your plate to your cells. You can choose what you eat, but once it gets into your body, your body works on its own. Let's see if we can figure out how minerals are broken down and taken in. When you eat foods that are high in minerals, your stomach digests them first. Acids and enzymes break them down into forms that your body can use. You must remember that unlike vitamins, minerals do not degrade with cooking, but some may leach out into cooking water—so steaming or roasting instead of boiling helps retain them. Minerals go into the small intestine after digestion, where they are absorbed into the blood. But there are a lot of things that affect absorption:

- Competing Nutrients – Calcium and iron, for example, fight for absorption, so having too much of one can make it harder for the other to be absorbed.

- Presence of Enhancers – Vitamin C helps the body absorb iron better, which is why orange juice with a meal high in iron is a terrific combo.

- Gut Health – A healthy digestive tract makes it easier for your body to take in minerals.

Minerals move to different regions of the body after they get into the blood:

- Calcium heads to bones and teeth.
- Iron goes to red blood cells for oxygen transport.
- Magnesium supports muscle function.

Getting enough of these minerals isn't difficult if we make simple dietary changes. If you can't drink milk because you're lactose intolerant, you can get your calcium from almonds, sesame seeds, or leafy greens like kale. If you don't eat meat and are a vegetarian, consume iron-rich plant meals alongside vitamin C-rich foods like oranges or bell peppers to help your body absorb the iron better. A bowl of spinach and lentil soup with a splash of lemon can do wonders for your health and energy levels. So, the next time you plan your meals, think about whether you're receiving enough calcium and iron to keep your body working and your energy up. Balance is the key! Now that we've talked about the basics of a balanced diet and how our daily decisions affect our health, let's talk about how nutrition affects kidney health in particular. The kidneys do a lot of important work without making a sound. They filter waste, keep fluids in balance, and control important minerals. But they also react quite strongly to what we eat. In Section 3, we'll talk about how each food, especially carbohydrates and proteins, can either help or hurt the kidneys.

SECTION THREE

Kidney-Focused Nutrition

Chronic Kidney Disease in India: Rising Burden

India is facing a quiet, but rapidly growing, health crisis — and it's centered around the kidneys

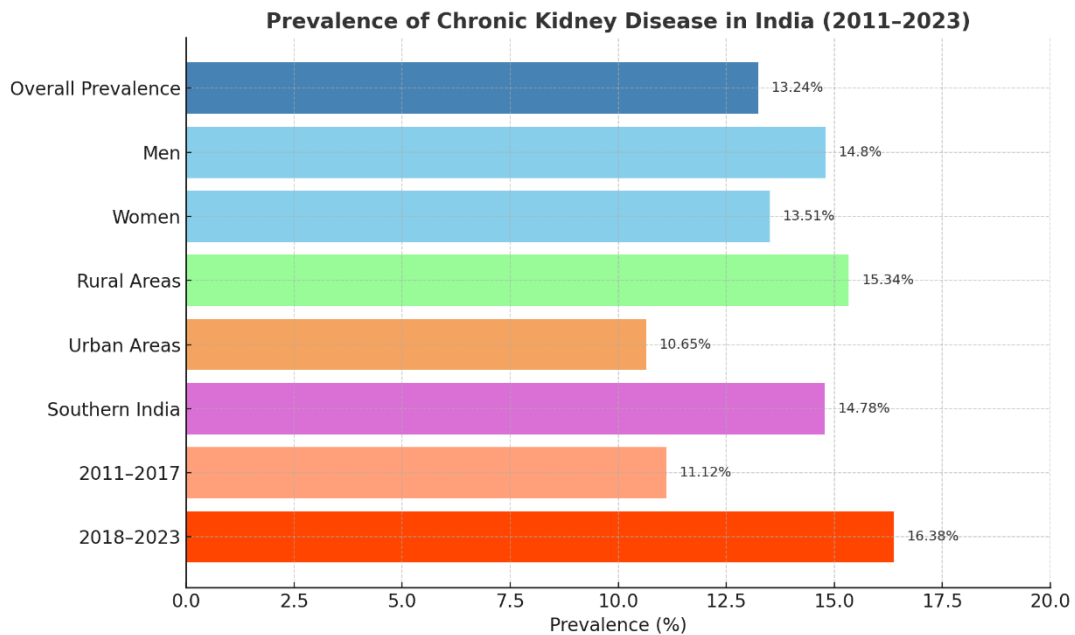


Figure: Prevalence of Chronic Kidney Disease (CKD) in India (2011-2023) across demographic and regional groups. The figure summarizes CKD prevalence among men, women, rural and urban populations, Southern India, and two time periods (2011-2017 vs. 2018-2023). Data show a marked increase in prevalence in the latter period.

Adapted from data presented in Rounik Talukdar et al., "Chronic Kidney Disease Prevalence in India: A Systematic Review and Meta-Analysis from Community-Based Representative Evidence Between 2011 to 2023," *Nephrology* (John Wiley and Sons Inc, January 1, 2025), <https://doi.org/10.1111/nep.14420>

According to a national meta-analysis conducted between 2011 and 2023, chronic kidney disease (CKD) now affects 13.24% of Indian adults aged 15 and above. The breakdown reveals even more concern: men (14.80%) are slightly more affected than women (13.51%), and rural areas (15.34%) show higher prevalence than urban ones (10.65%). Southern India reports the highest regional burden at 14.78%. Most strikingly, CKD rates have climbed from 11.12% (2011–2017) to 16.38% (2018–2023) – highlighting rising lifestyle risks and gaps in awareness and prevention³. This is more than just a statistic – it’s a signal. Kidney disease is no longer a rare or distant concern. It’s here, it’s rising, and it’s touching more lives every year. As we begin this part of our journey, one truth becomes clear: what we eat can either protect our kidneys or strain them further. This chapter will help you understand how everyday food choices impact kidney health, the science behind kidney-friendly eating, and how simple changes can lead to powerful results. Whether you're managing CKD, supporting a loved one, or simply aiming to protect your long-term health, the guidance ahead can help you.

Let's get started.

Meet Rohit: A Journey Towards Kidney Wellness at SRIAAS

Rohit is a 42-year-old schoolteacher from Bhiwani. He had maintained a routine life—morning walks, homemade meals, and was rarely indulged in junk food. But over the past few months,

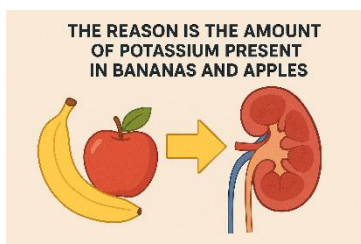
³ Rounik Talukdar et al., “Chronic Kidney Disease Prevalence in India: A Systematic Review and Meta-Analysis From Community-Based Representative Evidence Between 2011 to 2023,” *Nephrology* (John Wiley and Sons Inc, January 1, 2025), <https://doi.org/10.1111/nep.14420>.

things were getting different. He started experiencing unusual fatigue, frequent swelling in his feet and ankles, and occasional muscle cramps at night. He was in a belief that it's all due to ageing and his habit of working more than his abilities. What truly alarmed him was the persistent puffiness around his eyes every morning and a sudden drop in appetite. Thinking it was probably stress or aging, Rohit brushed it off. His family insisted on a full body inspection since they worried, he might have a heart condition as the swelling got worse and he started to feel short of breath even when going up stairs. Tests and analysis indicated that a lot of creatinine and protein were leaking out. This suggests that the kidneys aren't working as well as they used to. Rohit was afraid and didn't know what to do, so he went to SRIAAS to see Dr. Puru. He believed a lot in ayurveda, which is the traditional Indian way of treating illness. Dr. Puru calmly listened to what Rohit had to say about his symptoms and how he lived his life throughout their appointment. "Rohit, your kidneys are working too hard and not filtering waste as well as they should," he said. He ran more tests and looked over the data before this. This is why toxins and extra fluids are building up, which makes you feel weary and puffy. Rohit didn't know what to do. "But I eat well, Doc." A lot of dals and a lot of fruit, such oranges and bananas. Dr. Puru nodded and continued, "That's generally good, but when your kidneys stop working

well, your body can't handle as much potassium and phosphorus as it used to." Foods heavy in potassium, such bananas, oranges, spinach, and some lentils, can put even more stress on your kidneys and cause dangerous imbalances. He also said that the most important thing for managing Rohit's condition and

preventing future damage was a diet that was tailored to his kidneys. Rohit felt hopeful again. He learnt about Ayurvedic treatments and a meal plan at SRIAAS that would help his kidneys work better in a natural and tranquil way. Rohit felt lighter and more active during the next two weeks, and he saw that the swelling had gone down a lot. His later tests showed that his renal indications were stable. He had learnt more about how the foods he ate may help or hurt his kidneys, which was more important. Rohit now tells his story to raise awareness. He knows that sometimes the smallest change, like swapping a banana for an apple, may make a big impact when your kidneys need you the most. Your diet plays a huge role in keeping your kidneys happy and healthy. You can consider your kidneys like a hardworking housekeeper. What do they do? These housekeepers clean up and maintain your houses. Similarly, kidneys work constantly to remove waste, balance fluids, and regulate essential minerals and make sure nothing harmful builds up. But what happens when you keep making a mess faster than your kidneys can clean it up? The answer is -they get overworked, and toxins tend to accumulate in your system! That's exactly what happens when your kidney's function starts to deteriorate, and you do not choose the right foods for your kidneys. When kidney function declines, the filtering processes slow down, leading to a buildup of toxins, excess fluids, and imbalances in electrolytes like sodium, potassium, and phosphorus. By keeping a balance of potassium, phosphorus, and oxalates, you can build a kidney-friendly diet that supports your body's health—without overloading your kidneys. Researchers at George Institute for Global Health India in Delhi in collaboration with the PGIMER have

conducted a comprehensive study on the dietary habits of North Indian population, focusing on the intake of sodium, potassium, phosphorus, and protein. It was found that intake of several nutrients, including salt, potassium, phosphorus and protein, is either above or below the recommended levels that might be a reason for increased non-communicable disorder risk, including chronic kidney disease (CKD)⁴. By picking the right fruits, vegetables, grains, and legumes, you can lighten the load on your kidneys and prevent unnecessary strain! Thus, a well-planned diet reduces the strain on the kidneys, slowing further damage and this is very helpful for kidney patients. Let's imagine a scenario where you want to eat a banana when your kidneys are already struggling. There's nothing inherently wrong with eating a banana. However, in this case, it would be like dumping an extra pile of work on an already tired housekeeper. On the other hand, choosing few slices of apples is like giving them a break with an easy task. Now, why apples and not bananas?⁵



The reason is the amount of potassium present in bananas and apples. From this, we can conclude that the potassium content in foods is somehow troubling kidney patients⁶. But what effect does potassium have on the kidneys? Let's move ahead and understand in detail the role diet plays in life of a kidney patient.

⁴ Prabhjot Kaur et al., "Estimation of Dietary Intake of Sodium, Potassium, Phosphorus and Protein in Healthy Indian Population and Patients with Chronic Kidney Disease," *Frontiers in Nutrition* 11 (2024), <https://doi.org/10.3389/fnut.2024.1312581>.

⁵ National Kidney Foundation, "https://www.kidney.org/kidney-topics/apples," accessed June 14, 2025, <https://www.kidney.org/kidney-topics/apples>.

⁶ Kimberly Holland, "What Foods Are Bad for Kidneys?," August 30, 2023, <https://www.medicalnewstoday.com/articles/what-foods-are-bad-for-kidneys>.

Impact of Macronutrients (Protein, Fats, and Carbohydrates) in kidney disease

Nutrients present in foods are divided into two categories: macronutrients and micronutrients. Macronutrients form the foundation of our diet. These are called "macro" nutrients because the body needs a lot of them. They are carbs, proteins, and lipids. Micronutrients, such vitamins and minerals, are needed in lesser amounts, on the other hand. Both types are important, however macronutrients are the main source of energy and are particularly important for development, repair, and everyday physiological functioning. When it comes to kidney health, the type and amount of both things are quite significant. Let's start with carbohydrates—our body's main energy source. Not all carbs are created equal. Refined carbohydrates can spike blood sugar levels and may indirectly strain the kidneys, whereas complex carbs provide slow, steady energy and are a better choice for maintaining overall health. Next, let's clear up a frequent misconception: fats aren't bad for you. Healthy fats are important for brain function, hormone production, and energy. But too much or bad fats, especially saturated and trans fats, can make inflammation worse and raise the risk of heart disease, which is already increased in those with renal disease. Protein is also important for repairing muscles and keeping the immune system strong, but it is a different kind of problem. When protein breaks down, it generates waste that the kidneys have to get rid of. This means that if you have renal problems, eating too much

protein can make your kidneys work harder, which is already stressful for them. So, how does all this happen in your body? Think of your kidneys as a water filtration system. The more “impurities” (or waste products from nutrient metabolism) you put in, the harder the system has to work. When kidneys are damaged, they can’t filter efficiently—so choosing the right types and amounts of macronutrients becomes crucial. That’s why people with renal disease need to be extremely careful about what they eat. The goal is not just to eat less, but also to eat better by picking meals that don’t place too much stress on the kidneys. You can decrease the progression of kidney disease, lessen symptoms, and feel better overall by getting the appropriate mix of macronutrients.

PROTEIN

HEALTHY KIDNEYS
Moderate Protein Intake

CHRONIC KIDNEY DISEASE (CKD)

Reduced Protein Intake.
Why? Protein Waste = Kidney Stress

FATS

HEALTHY FATS
Monounsaturated & Polyunsaturated
(Olive Oil, Fish, Nuts)
Goal: Reduce Inflammation

UNHEALTHY FATS
Saturated & Trans
(Processed Foods)
Goal: Protect Heart Health

CARBOHYDRATES

COMPLEX CARBS
Whole Grains, Fruits, Veggies
Goal: Steady Energy, Fiber

SIMPLE CARBS
Sugary Foods, Refined Grains
Manage Blood Sugar

Tailored Nutrition is Key for Kidney Health

What exactly does the kidneys consider "waste"?
That's the key piece we'll explore next.

Meena's story, Age-36 yrs, Jaipur

For Meena, a 36-year-old from Jaipur, life was moving at its usual pace, until small signs started appearing. She started noticing little swelling in the feet tiredness that was continuous, frothy urine. At first, she ignored it. But when the symptoms lingered and when it reached the level that it started hampering her daily chores, her husband decided to get it tested. The results were unexpected: 3+ protein in her urine, with 1.9 grams lost in a 24-hour sample. It was proteinuria—a condition she had never heard of before. Confused and anxious, Meena visited Dr. Puru at SRIAAS. Instead of overwhelming her with medical terms, he explained things simply. Having followed social media advice, she always believed that eating more protein meant better health. But Dr. Puru helped her realise that in her case, eating too much protein was actually making her kidneys work harder. With his advice, she started eating a low-protein diet that was excellent for her kidneys and getting Ayurvedic treatments. The results were clear in a few weeks: less oedema, more energy, and a follow-up test that showed her urine protein had dropped to 1+. Meena was most impressed by the treatment, but also by how clear and caring everything was.

Impact of Protein and why the amount of Protein can be a Problem?

As we have read before, proteins are popularly known as the building blocks of the body and are present in almost all the foods that you eat. These proteins are essential for muscle growth, tissue repair, immune system and hormone and enzyme production. Proteins are found in animal based and plant-based sources, commonly known as animal protein and plant protein. Animal protein includes all of the amino acids that your body needs. While plant proteins need to be combined from different sources to get all of the amino acids that your body needs. You must be surprised that most diets include both types of protein. Let's find out the sources of animal and plant proteins.

Animal-protein Foods

- Meat, such as pork, beef, chicken, turkey, duck
- Eggs
- Dairy products, such as milk, yogurt, cheese
- Fish

Plant-protein Foods

High Protein

- Beans, peas, lentils
- Soy foods, such as soy milk, tofu

Low Protein

- Nuts and nut spreads, such as almond butter, peanut butter, soy nut butter
- Sunflower seeds, Pumpkin seeds
- Bread/chapatis/tortillas
- Oatmeal, cereals
- Pasta, noodles, rice
- Rice milk (not enriched)

What is the role of proteins in people with kidney disease?

Proteins are of various types and each protein is made up of different amino acids. There are 20 different types of amino acids that combine in a specific pattern to make a type of protein. The sequence of amino acids determines each protein's unique 3-dimensional structure and its specific function. When any food is consumed, the digestive system breaks the proteins present there back into amino acids, which are absorbed into the bloodstream and utilized throughout the body. However, once protein is metabolized, it produces waste products such as urea and creatinine, which the kidneys must filter out through urine. If this waste is not filtered out, it remains in the blood and causes problems.

Suresh, 48, from Lucknow, was experiencing kidney problems

Suresh, a 48-year-old marketing professional from Lucknow, was used to handling high-pressure deadlines and long working hours. Over the past few weeks, he had been feeling unusually exhausted, so he took a 7-day leave. However, even after complete rest and full nights of sleep, nothing changed. A few days later, he began experiencing nausea, a metallic taste in his mouth, and occasional muscle cramps. Thinking it might be a stomach infection, he began self-medicating—but what he ended up with was swelling in his feet and puffiness around his eyes, which became too noticeable to ignore.

When he also noticed his urine output had decreased, his family insisted he get some blood work done. The reports were

concerning—creatinine at 4.2 mg/dL and urea at 98 mg/dL—indicating that his kidneys were not filtering properly. That’s when Suresh visited SRIAAS and met Dr. Puru. Dr. Puru patiently walked him through his condition. “Your kidneys are your body’s natural cleaners,” he explained. “When they’re overworked or damaged, toxins like creatinine and urea begin to build up, leading to symptoms like the ones you’re experiencing.” Suresh was surprised to learn that his high-protein meals, salty snacks during work hours, and irregular hydration were silently putting pressure on his kidneys. Under Dr. Puru’s care, he was put on a kidney-specific Ayurvedic treatment plan and a low-protein, low-sodium diet. Within a month, things began to shift. The swelling reduced, his nausea subsided, and he began to feel more like himself. A follow-up test brought more relief—creatinine dropped to 3.1, and urea to 68. If you know any kidney patient you must also have heard the word creatinine. We need to understand more about it. Why is this troubling them? How should we control it? Creatine is a natural substance found in your muscles and brain. It is made by your liver, kidneys, and pancreas from amino acids you get from proteins, and you also get creatine from foods like red meat and fish. This creatine acts like a quick energy booster for your muscles. Whenever your body needs a short burst of energy — like when you are lifting something heavy, sprinting, or even climbing stairs, creatine helps recharge your muscles, giving them the fuel to keep going. A byproduct or waste thus created is creatinine. This waste, the kidneys must filter out of your body. If your kidney function is compromised, these wastes accumulate in the blood, and its circulation leads to symptoms such as nausea, fatigue, and confusion. Now you must have

understood why animal proteins are more troublesome to kidney patients.

Why are Proteins restricted for Kidney Patients?

You must have understood now that protein should be balanced in the diet of kidney patients. Not only because of its metabolic waste but protein metabolism also affects sodium, potassium, and phosphorus balance, which can lead to swelling (edema), high blood pressure, and bone weakness in kidney patients. In healthy kidneys, filtration process runs smoothly. This means whatever is to be there in the blood is kept intact and whatever is not necessary for your body is filtered out. Whether you realize it or not but each of your body organ works smartly. However, in chronic kidney disease (CKD), consuming too much protein puts extra strain on the kidneys, which are already struggling to function properly. Since the kidneys are responsible for filtering out waste from protein metabolism, eating large amounts of protein increases the amount of waste they must process. When the kidneys don't work right, waste products like urea and creatinine start to build up in the blood. This can cause symptoms like tiredness, nausea, loss of appetite, and even trouble breathing. Over time, this extra labor can make the kidneys worse faster, which can lead to fluid imbalance and acidosis, making a person need dialysis sooner than they thought they would. By managing protein intake wisely, CKD patients can help slow down kidney damage and maintain better overall health.

How much protein should Kidney Patients eat?

Getting the protein balance right is crucial for anyone living with kidney disease. But how do we determine the right amount? And how can we track what we're consuming? The good news is that it's not as hard as it looks; you just need the correct help. How well the kidneys are performing has a big impact on how much protein is optimal for you to eat. People commonly quantify this with something called GFR (Glomerular Filtration Rate).

Based on this, protein recommendations are made⁷:

Early-stage kidney disease: A moderate protein intake i.e. eating a small amount of protein, which is roughly 0.6 to 0.8 grammes per kilogram of body weight, will help your kidneys work less hard.

Advanced kidney disease (non-dialysis): A low-protein diet is advised i.e. to keep waste from piling up, you should eat a diet low in protein.

Dialysis patients: They often require a higher protein intake because dialysis not only removes waste but also some essential proteins and we need it to be compensated.

In short, protein isn't bad for you; you simply need to be sure it doesn't hurt your kidneys. Finding the right balance will help your kidneys stay healthy and make you healthier overall.

Protein is good for your health and helps you preserve your muscle mass, but some varieties can generate more waste,

⁷ Kamyar Kalantar-Zadeh and Denis Fouque, "Nutritional Management of Chronic Kidney Disease," *New England Journal of Medicine* 377, no. 18 (November 2, 2017): 1765–76, <https://doi.org/10.1056/nejmra1700312>.

which makes it harder for weak kidneys to filter out pollutants. People with kidney disease need to be very careful about the protein sources they ingest and how much they eat. Because of this, it is best to go to your doctor for advice.

How to choose the right amount and type of Protein?

Now, getting the right amount of protein is a must for kidney patients. But how to figure that out? Let's understand it here: Kidney patients should eat smaller portions of plant-based protein like legumes. This will also help them lower the amount of proteins and phosphorus in their diet naturally. They should avoid animal-based protein because phosphorus and creatine are found in animal foods.

Animal-Based Proteins (Easier to Absorb but Higher Waste Load)
Did you know that animal proteins are easier for your body to use? That means your body can use them better! But here's the catch: they also make more waste, which puts greater stress on your kidneys. So, which one is better? many people with kidney disease worry about getting enough protein, although they usually don't have to. Foods that people eat every day, such as bread, chapatis, lentils, legumes, and vegetables, already have enough protein to support the body's fundamental needs. Many people from Jain and vegan communities in India, on the other hand, do well on diets that are only made up of plants and don't have any problems. Dr. Puru says that you should stay away from animal-based proteins since they are tougher to digest and create more waste, which puts additional strain on kidneys that

are already not working well. Processed meat also tends to have a lot of salt, which makes you hold onto water and raises your blood pressure. They elevate the levels of waste products like urea and creatinine, which makes the kidneys work harder.

Plant-Based Proteins (Lower Waste but Higher in Phosphorus and Potassium)

Plant proteins include benefits like fiber and lower cholesterol, but they also have phosphorus in a form that is tougher for the body to absorb. This makes them a better choice for kidney patients, as they provide essential nutrients while reducing the strain on the kidneys. However, portion control is still important, as excessive phosphorus intake—whether from plant or animal sources—can negatively impact kidney health. So, the better choices among plant-based proteins are Pulses and Legumes. It should be noted that lentils and beans are high in fiber and protein, and they contain significant phosphorus, which can be harmful for kidney patients if not controlled. But Dr. Puru suggests that there is no need to worry about phosphate presence as it can be managed. Choosing between plant and animal protein is like selecting between two types of fuel for your car—some are cleaner (plant protein), while others are stronger and create more pollution (animal protein). So, here the key is to avoid animal-based protein!

Tip: Kidney patients must balance their protein intake carefully—too much can speed up kidney damage!

Fats: Choosing the Right Type for Kidney Protection Patient Spotlight – Mahesh Rao Patil, 50, Nanded (Maharashtra) Mahesh had always considered himself fit. A 50-year-old farmworker from Nanded, he was up before sunrise, walked several kilometers daily across his fields, and rarely sat still during the day. But when he started experiencing a strange heaviness in his head, persistent tiredness, and occasional dizziness, he attributed it to age and weather. One day, after feeling unusually breathless while loading sacks of grain, he finally visited a local clinic. Routine blood work revealed elevated cholesterol (LDL 206 mg/dL), triglycerides (295 mg/dL), and a creatinine level of 2.1 mg/dL—early signs that his kidneys weren't coping well either. Confused and concerned, Mahesh was referred to Dr. Puru at SRIAAS, where he learned for the first time that uncontrolled cholesterol and triglyceride levels can quietly damage blood vessels—including those in the kidneys. His active lifestyle alone wasn't enough to protect him from the impact of years of fried snacks, full-fat dairy, and late dinners. At SRIAAS, Mahesh learnt about a balanced Ayurvedic approach that helped stabilize both his kidney function and his cholesterol profile. He didn't need to make big adjustments; he just needed to switch foods, eat on time, and obtain Ayurvedic treatments that were right for him. He got his energy back in two months. His LDL dropped to 134 mg/dL, triglycerides to 190 mg/dL, and creatinine reduced to 1.6 mg/dL. More importantly, Mahesh felt lighter and more aware of his body. Fats are an essential part of our diet! They provide us energy, help our cells work properly, assist our bodies absorb vital fat-soluble vitamins like A, D, E, and K, protect our organs, control our hormones, improve cognitive

function, and even lower inflammation. That sounds fairly essential, doesn't it? But you may have heard different things, which makes it hard to choose what to eat, where to acquire it, and how much to consume. So, how do you pick the proper one? To understand it better, let's start here... Monounsaturated fats, polyunsaturated fats, saturated fats, and trans fats are the four main types of fats that we eat. Monounsaturated and polyunsaturated fats are good for you since they help keep your cholesterol levels in check. Peanut butter, almonds, cashews, hazelnuts, pistachios, olive oil, olives, and avocados are all foods that are high in monounsaturated fats. Polyunsaturated fats are present in oily fishlike mackerel and salmon, as well as in rapeseed oil, sunflower oil, corn oil, walnuts, pine nuts, sesame seeds and sunflower seeds. These fats give the body omega-3 and omega-6 fatty acids that it can't make on its own. Saturated and trans fats are thought to be "bad" because they can elevate bad (non-HDL) cholesterol levels, which makes stroke, heart attack, and vascular dementia more likely. Processed and fatty meats like sausages, ham, burgers and bacon, as well as hard cheeses like cheddar, whole milk, cream, ice cream, butter, lard, ghee, palm oil and coconut oil, are all high in these fats. It's a good idea to replace some of these with healthy unsaturated fats to lessen their bad effects. Trans fats are often hidden in fried foods, takeaways, and snacks like biscuits, cakes, pies, pastries, and hard margarines made with hydrogenated oil and should be limited as much as possible. So, why is this particularly important for someone with kidney disease? The kind and amount of fat you eat can have a big effect on your health and your kidneys. That's why it's so important to choose your meals

carefully so that you can manage your condition and avoid more problems. People with kidney disease are more likely to have heart difficulties. Because of this, you should be careful about the types of fats you ingest. Healthy fats can help reduce swelling and keep your blood vessels working efficiently. On the other hand, unhealthy fats in fried foods, processed snacks, and red meat can block arteries, which can lead to conditions like atherosclerosis, which is when blood vessels get narrower. This makes it more likely that you will have high blood pressure and heart attacks, which can injure your kidneys even more. Eating too much fat can also help you gain weight, which is a major risk factor for diabetes and high blood pressure, two of the most prevalent causes of kidney disease. Just like keeping roads clear allows traffic to flow smoothly, choosing the right fats helps your heart and kidneys work efficiently, slowing down the progression of kidney disease. You can lower your risk of heart disease and protect your heart health by substituting trans fats and saturated fats in your diet with healthy monounsaturated and polyunsaturated fats. People with kidney illness are more likely to have cardiac difficulties because their kidneys have trouble getting rid of extra waste and fluid, which affects how the heart works. Eating the wrong kinds of fats can worsen their condition in several ways.

Best Fat Choices for Kidney Health:

Healthy Fats: Olive oil, mustard oil, sunflower oil, groundnut oil, canola oil, sesame oil etc. Avoid: Fried foods, processed snacks, red meat, butter, and full-fat dairy.

Sources of fat in your diet

Completely avoid these foods

- saturated fats- butter, lard, red meat, whole milk
- trans fats - commercially baked goods, such as cookies and cakes, doughnuts, french fries
- hydrogenated vegetable oils-margarine, shortening can be consumed in moderation
- monounsaturated and polyunsaturated fats- canola oil, nuts, oatmeal, olive oil, salmon, sesame oil

Carbohydrates: Type and quantity must be the choice for health

Patient Story – Aryan, 22, Delhi

At just 22, Aryan was a fitness enthusiast from Delhi—passionate about gym workouts, protein shakes, and tracking macros. With thousands of fitness influencers flooding his social media feed, he was constantly tempted to try trending diets. One particular trend caught his eye: low-carb, high-protein diets promising rapid muscle gain and fat loss. Aryan, already diagnosed with Stage 2 chronic kidney disease due to an autoimmune condition, decided to self-experiment. He drastically reduced his carb intake and replaced it with excessive protein from meats, powders, and eggs, thinking it would fast-track his transformation. But just three weeks into this diet, Aryan began feeling nauseous, fatigued, and mentally foggy. He ignored it as “keto flu.” Soon, he started experiencing back pain, decreased appetite, and swelling around the eyes—

signs his body couldn't ignore. Worried, his parents got his blood tests done.

The reports were alarming:

1. Creatinine jumped to 4.2 mg/dL
2. Urea was 110 mg/dL
3. Potassium levels were elevated
4. Signs of metabolic acidosis were visible

They immediately brought him to SRIAAS, where he consulted Dr. Puru. Aryan's levels slowly stabilised with timely intervention, Ayurvedic medicines that helped his kidneys, and a personalised nutrition plan that was good for his kidneys. In the weeks that followed, his creatinine level dropped to 3.0 mg/dL, and his symptoms started to get better. Protein intake is important, which makes carbohydrates even more valuable! Why? Because they provide energy without overloading the kidneys. They also assist keep muscles from breaking down. When your body doesn't get enough carbs, it uses muscle tissue for energy, which makes extra waste for the kidneys to filter out. Carbs are much more important for keeping blood sugar levels steady for people who have both diabetes and chronic kidney disease (CKD). So, it's not just useful to choose the appropriate kind and amount of carbs; it's necessary. You might be asking how much and what kind of carbs you should eat right now. Not everyone will get the same response.

It depends on a number of crucial things, such as:

- Stage of Kidney Disease – As CKD gets worse, your body may not be able to handle glucose as well. This means that how well your kidneys work could change how many carbs you need.
- Diabetes Status – Many individuals with CKD also have diabetes, which makes blood sugar control a top priority. That’s why the type and portion of carbohydrates in your meals need to be carefully chosen and planned.
- Nutritional Needs – Carbohydrates become a main source of energy because protein has to be reduced in CKD. If you're cutting back on protein, you need to make sure you get that energy back with healthy carbs that are good for your kidneys. Eating too many carbs, especially processed ones like sugar and white bread, can cause blood sugar levels to rise. This is especially bad for people with diabetes-related renal disease since high blood sugar levels can make kidney damage happen faster. Eating too many carbs can also make you gain weight, which puts more stress on your already weak kidneys. Also, eating a lot of refined carbs causes inflammation and oxidative stress, which makes renal function even worse⁸. But eating too few carbs might also be bad for you. When the body doesn't get enough carbs, it starts to use muscle for energy. This raise amounts of urea and creatinine, which puts even more stress on the kidneys. A loss of energy from not eating enough carbs can also make you tired, weak, and have trouble concentrating. Also, not eating enough carbohydrates makes the body burn fat for energy, which makes too much acid and raises the risk of

⁸ Zeynep Erdemli et al., “High-Fat and Carbohydrate Diet Caused Chronic Kidney Damage by Disrupting Kidney Function, Caspase-3, Oxidative Stress and Inflammation,” *Prostaglandins & Other Lipid Mediators* 172 (June 1, 2024): 106822, <https://doi.org/10.1016/J.PROSTAGLANDINS.2024.106822>.

acidosis, a condition that makes the blood overly acidic and makes the kidneys less healthy. So, keeping a good balance of carbohydrates in your diet is important for your kidneys and your health in general. "It's all about balance" is a slogan we've all heard, and when it comes to your food, it's true!

But how do you find that exact balance? It totally depends on what your health demands are. That's why it's so crucial to make a personalized food plan with your doctor or a qualified dietitian that helps your body in the best way possible.

How to Manage Carbohydrate Intake for Kidney Health?

It is very important to find the correct mix of simple and complex carbs, especially for people with kidney problems. You should choose based on your health and what your doctor says. Whole grains and fibre-rich vegetables are examples of complex carbs that provide you continuous energy and keep your blood sugar from rising too quickly. Fruits are an example of a simple carbohydrate that can give you rapid energy when you need it. Many people with kidney disease also have diabetes, and eating too many carbs can raise blood sugar levels, which can hurt the blood vessels in the kidneys. Complex carbs keep your energy levels steady, but you might need to cut back on whole grains that are high in phosphorus. Overeating sugar can cause obesity and metabolic problems, which can make kidney function worse. It helps to keep your balance if you eat vegetables with your carbs. This helps slow down the absorption of sugar, which keeps energy levels steady and stops blood sugar from rising quickly. Also, it's crucial to keep track of how much you eat.

Eating too much or too little can throw off the balance of your body, which can affect your kidneys and your health in general. Making informed choices can aid your health without putting too much load on your kidneys.

Example:

Complex carbs: Whole grains, vegetables, and legumes (rich in fiber).

Simple carbs: Sugar, white bread, sweets, and processed foods.

Best Carbohydrate Choices for Kidney Patients:

Choices that are good for you: Apples, berries, cauliflower, and refined grains (which are low in phosphorus) are all good for you.

Do not consume: sodas, pastries, sugary cereals, potatoes (which are high in potassium), or whole grains (which are high in phosphorus).

Dietary Fiber

Meena's Turning Point to health with Dr. Puru at SRIAAS

Meena, a 44-year-old small businesswoman from Jaipur, had been living with type 2 diabetes and high blood pressure for almost 8 years. Alongside, she had been suffering from chronic constipation. She couldn't even remember when it had started, so she brushed it off as 'normal'—blaming it on her hectic lifestyle and irregular eating habits. But in the last several months, things started to build up, both in real life and in my mind. Meena took her diabetic and blood pressure medications as directed, but she

still felt tired even after sleeping. Her feet swelled up and she had a metallic taste in her mouth. Her constipation had gotten worse, and she often went three to four days without having a bowel movement. It was hard to deal with bloating and pain every day. She thought that I might be going through signs of pre-menopause. But after a few days, she became concerned and underwent several tests. Her reports showed:

Creatinine: 2.1 mg/dL

Urea: 68 mg/dL

HbA1c: 8.4%

Triglycerides: 280 mg/dL

She was shocked by the results and went to see Dr. Puru at SRIAAS, where she was told she had early-stage chronic kidney disease (CKD). Dr. Puru and his colleagues advised her that eating outside food that was low in fiber and high in salt and fat for years had steadily harmed her kidneys and made her digestive problems worse. She was told to eat a customised, fiber-rich diet that was beneficial for her kidneys and included meals she produced herself. Gradually, her constipation began to ease, energy levels improved, and her lab parameters showed promising change:

HbA1c dropped to 7.2%

Triglycerides came down to 190 mg/dL

Do you know that dietary fiber is also a type of carbohydrate found in plant foods that helps with digestion, weight management, and bowel health? The body can't digest or absorb it, which makes it different from other carbs like sugars and

starches. Fiber is an important part of a healthy diet and helps keep our digestive system running well. It helps with digestion, stops you from being constipated, and keeps your gut healthy in general. But is this fiber also useful for people with renal disease? Yes! Fiber is good for more than just helping you digest food. It can also help with some of the common health problems that come with renal failure, like high blood sugar, cholesterol, and stomach problems.

But if someone has kidney disease, their body may not break down nutrients in the same way as a healthy person. This means that people need to modify the kind and amount of fiber they eat to fit their own health needs. Some foods that are high in fiber also have minerals like potassium and phosphorus that people with kidney disease need to be careful about. That's why it's crucial to know about the different kinds of fiber, how the body breaks them down, and what changes need to be made to a diet that is good for the kidneys. Kidney sufferers can improve their digestion, consume a balanced diet, and be healthy overall by choosing the correct foods.

Types of Dietary Fiber and Their Digestion

Dietary fiber is categorized into two main types:

1. Soluble Fiber: As the name suggests, this kind of fiber dissolves in water and becomes a gel-like substance. You can find it in grains, fruits, and beans, among other things. Soluble fiber slows down digestion in the gut and can help maintain blood sugar levels steady.

2. Insoluble Fiber: This kind of fiber doesn't disintegrate in water and makes the stool larger, which helps you go to the toilet more often. It is in nuts, whole grains, and vegetables. When you eat insoluble fiber, it typically stays the same as it passes through your digestive system.

Fiber Digestion in Healthy Individuals vs. Kidney Patients

- Healthy Individuals: Fiber is excellent for your gut! When you ingest soluble fiber, it breaks down in your stomach and generates short-chain fatty acids that are excellent for your colon. Insoluble fiber, on the other hand, works like a broom to move waste through your digestive tract and keep you from being constipated.
- Kidney Patients: If you have chronic kidney disease (CKD), things are a little different. CKD might make your digestion slower and maybe even change the microbes in your stomach, which could cause constipation. Adding more fiber to your diet will help things
- move along and keep your gut healthier. But here's the thing: some foods that are high in fiber are also high in potassium, which people with CKD need to watch out for. So, it's all about finding the right balance!

Recommended Fiber Intake for Kidney Patients⁹

Most adults are advised to get 25–38 grams of fiber daily, but if you have chronic kidney disease (CKD), chances are there that you might be getting far less—around 10–12 grams per day on

⁹ Guobin Su et al., "Fiber Intake and Health in People with Chronic Kidney Disease," *Clinical Kidney Journal* (Oxford University Press, February 1, 2022), <https://doi.org/10.1093/ckj/sfab169>.

average. So, should you increase your fiber intake? Yes, of course! But there's a catch: it has to be done properly and with medical supervision to avoid any possible complications.

Adding 25 to 30 grams or more of fiber to your diet could assist a lot of people with CKD, but not everyone. Since CKD changes how your body works, it's always best to talk to your doctor or dietitian about what will work best for you! **Precautions and Dietary Adjustments**

If you have kidney difficulties, you should consider the following aspects when it comes to eating fiber:

- **Monitor Potassium and Phosphorus:** A lot of high-fiber foods are also high in potassium and phosphorus, which may need to be limited in CKD diets. It's vital to see a doctor and check your blood levels often.
- **Gradual Increase:** If you suddenly eat more fiber, your stomach may hurt. It's best to slowly add foods high in fiber to your diet.
- **Hydration:** Getting enough fluids is important for fiber to flow through the digestive system, however some kidney patients may need to limit their fluid consumption. It is crucial to have the right amount of fiber and fluids.

When we talk about fiber, choosing the right sources is key to supporting digestion without putting extra strain on your kidneys. So, what are the best options? Let's read ahead!

1. Low-Potassium

Do you love fruits? Great! You should stick to apples, berries, papaya etc.—they're packed with fiber but would not overload your body with potassium. A handful of berries in your yogurt or a sliced apple for a snack? Both are perfect! Dr. Puru always suggests to avoid high potassium fruits like avocado, kiwi, dates, dry fruits and all citrus fruits.

2. Kidney-Friendly Veggies

Sorry to tell you but not all veggies are safe for kidney patients, but the good news is that some fiber-rich options work just fine! Cauliflower, cucumbers, and lettuce are low in potassium and can be easily included in your meals. Try adding cucumbers to your salads or roasting some cauliflower for a delicious side dish.

3. Refined Grains – Yes, You Can Have Them!

Whole grains may have more fiber, but they also come with higher phosphorus levels. So, they are not a better choice for kidney health. White bread, pasta, and rice can be included in adequate amount. They provide fiber while keeping phosphorus intake in check. So, don't feel guilty about enjoying a bowl of white rice or a sandwich with white bread!

Balance and Personalization is your key to fitness...

Every kidney patient has different needs, so it's always advised to personalize your diet based on your health condition. Talk to your doctor or a dietitian to fine-tune your fiber intake

Fluid Intake in Kidney Patients: Finding the Right Balance

Misjudged as a Kidney Stone, Saved by the Right Diagnosis

Neelam, a 39-year-old homemaker from Agra, had a history of kidney stones about 10 years ago. So, when she started feeling a dull pain in her lower back, frequent urination, and discomfort in the abdominal area, she assumed history was repeating itself.

"I thought it must be another stone," she recalled. Acting on her own judgment, Neelam began drinking 4 to 5 liters of water daily, convinced that flushing out her system would help. But instead of feeling better, things got worse. Within a week, she noticed swelling in her feet, puffiness around her eyes, shortness of breath, and a strange sense of fatigue she couldn't shake off. Her family urged her to consult a specialist—and that's when she visited Dr. Puru at SRIAAS. After detailed evaluation and tests, her reports revealed:

Creatinine: 3.2 mg/dL

Urea: 92 mg/dL

eGFR: 24 ml/min/1.73m²

Urine Protein: 2+

Dr. Puru explained that kidney disorder and excessive water intake had only increased fluid retention, making the swelling and symptoms more severe. He explained how CKD needs individualized fluid management, not one-size-fits-all advice like "drink more water." Neelam was immediately placed on a controlled fluid and kidney-friendly diet plan. Salt intake was restricted, and the team at SRIAAS monitored her regularly with follow-up tests. Her swelling went down slowly, her energy levels

went up, and her kidneys started to work better. Neelam is sticking to her plan today and is positive that her treatment is working. We all know that having healthy kidneys is quite important for keeping the body's fluids in balance. They take back the fluids the body needs to be hydrated and not get dehydrated. They also get rid of extra water and waste, making sure that fluids that aren't needed are released as urine. People with renal disease need to keep track of how much fluid they drink since drinking too much can induce oedema, high blood pressure, and heart failure. On the other side, being dehydrated can make you feel weak, disoriented, and harm your kidneys even more. Keeping the appropriate amount of fluids in your body also keeps your sodium and electrolyte levels consistent, puts less stress on your heart, and stops your muscles from breaking down. It's not always easy to determine when your kidneys are starting to fail because it happens slowly and quietly. Kidney disease becomes worse without generating acute pain, unlike other health problems that are easy to see. As a result, many people ignore the symptoms or mistake them for general fatigue, stress, or aging. Let us try to understand this...

Imagine pouring more water into a bucket that already has a slow drain—it starts to give a backward flow. Fluid retention in renal disease can cause:

Swelling (Edema) – Fluid builds up in the legs, feet, and sometimes the lungs, which makes it hard to breathe.

High Blood Pressure – Too much water in the blood makes the heart work harder by making the blood volume bigger.

Heart Strain – Too much fluid puts stress on the circulatory system, which raises the risk of heart problems.

Without adequate hydration, toxins build up in the blood, increasing the risk of nausea, confusion, and fatigue and the risk of kidney stones and infections also rises due to concentrated urine. You can correlate your body like a sponge—it absorbs water, but if there's too much, it has to squeeze some out. Kidneys act as this "squeezer" to control fluid levels. Now, how to calculate fluid intake for kidney patients? Yes, this is the next question that needs to be asked.

The proper amount of fluid depends on:

Kidney Function (GFR Level): Lower the function, means stricter is the fluid control

Dialysis Status: Dialysis patients need to limit how much fluid they take in.

Urine Output: If the amount of urine produced is low, you need to calculate the amount of fluid you drink.

Weight & Swelling: If you suddenly gain weight, it could mean you're holding on to water

Medical Conditions: Needs are affected by diabetes, heart disease, and high blood pressure.

A general rule of thumb for how much fluid dialysis patients should drink each day is:

Daily Fluid Allowance = Urine Output + 500-800 mL (This 500 to 800mL accounts for fluid loss through sweat and breathing). But this isn't a guideline that works for everyone. The amount of fluid a person needs depends on their health, how often they have

dialysis, and how well their kidneys operate in general. So, it's really important to listen to your doctor when they tell you how much fluid to drink so you don't get problems like swelling, high blood pressure, or too much fluid.

Now, what is the way to manage fluid intake in kidney disease? Yes, you can control how much fluid you drink to some extent if you have kidney illness. One good technique to control thirst without drinking too much is to suck on ice chips, chew sugar-free gum, use frozen apples to make your tongue feel fresh, or rinse your mouth often to keep it from getting too dry. Another key strategy is to be careful with the food sources of fluids since items like soups, juicy fruits (watermelon, oranges, grapes), and even yogurt contribute to total fluid intake. Eating foods with less water, including crackers and toast, may help keep your body hydrated. It's also vital to keep note of how much water you drink every day. Drinking in small sips throughout the day instead of big gulps can help you avoid drinking too much. Dr. Puru suggests a simple but helpful way to keep track of how much fluid you drink, which is very important for patients with kidney problems. He says that if you are on dialysis, you should drink only half a cup of water at a time and then wait 15 to 20 minutes before drinking more. Only drink more if you are still thirsty. Taking your time and being aware of what you're drinking helps keep you from getting too much liquids. And what if you aren't on dialysis? Then you can be a little more flexible; you can have up to one cup (around 100 ml) at a time. Either way, the key is to listen to your body and stay within limits to keep your kidneys from working overtime. Other people just need to decrease their

water intake if they have symptoms of pedal oedema. Lastly, cutting back on salt is really important because less salt makes you less thirsty. Kidney patients can better control their fluids if they don't eat processed or salty meals, which can assist them avoid drinking too much. What affects fluid balance in the body? You will be surprised to know that fluid balance isn't just about how much water you drink—it is influenced by several factors. When kidney function goes down, the body has a harder time getting rid of extra fluid, which makes it even more important to limit fluid intake. Salt intake also influences fluid levels. Eating more sodium makes you thirstier and keeps more fluid in your body, which puts more strain on your kidneys. Diuretics, also called "water pills," help get rid of extra fluid, but taking too much might make you dehydrated, which can make you feel weak and dizzy. Weather and activity levels also affect how much water you need. For example, hot weather and exercise make you sweat more, which may mean you need to drink more fluids. For those who are getting dialysis, fluid removal is managed. However, patients need to be careful not to acquire too much fluid between sessions, as this can lead to problems including high blood pressure and swelling. Managing these things is very important for keeping the right fluid balance in renal illness.

Potassium - Balancing Benefits and Risks

A Hidden Risk Uncovered – Manoj’s Journey to Safer Health with Dr. Puru

Manoj, 46-year-old government service personnel from Gwalior, had faced a kidney issue nearly 7 years ago. At the time, he recovered well and didn’t think much about it afterward. Life got busy, and routine health checks took a backseat. Fast forward to a few months ago, Manoj began experiencing muscle weakness, occasional palpitations, and mild breathlessness. He thought it was due to stress or fatigue from school work. But one evening, after climbing a flight of stairs, he felt unusually dizzy and had to sit down. While in tension, he got some tests done. His potassium level had shot up to 6.1 mq/L, well above the safe range. His creatinine was 2.6 mg/dL, and his eGFR had dropped significantly. It wasn’t just an electrolyte imbalance—his kidneys were struggling again. That’s when Manoj was referred to Dr. Puru at SRIAAS. Dr. Puru talked to him about his whole medical history and told him that potassium is important but can be dangerous for people who have kidney problems. Manoj's potassium levels were too high because of several of the foods he ate, like bananas, oranges, coconut water, and even some salt replacements. He was put on a renal diet right away, which meant he had to eat foods low in potassium. He also got tailored meal plans. He also learnt how to leach veggies to get rid of some of their potassium. His medications were changed over the next three weeks, and his electrolytes were closely watched. Manoj's potassium levels slowly returned to normal with the correct care,

and his kidneys started to work better. Yes! Potassium is healthy for muscles and nerves most of the time, and bananas have a lot of it. But when your kidneys aren't working correctly, they have a hard time getting rid of the extra potassium. Hyperkalaemia is when there is too much potassium in the blood. Too much potassium in the body can mess with the delicate balance of electrolytes. This can cause:

- Muscle weakness or paralysis- An imbalance in electrolytes makes it harder for nerve messages to go through.
- Irregular heartbeat (arrhythmia) and even cardiac arrest- When potassium levels in the blood grow too high, the heart's normal electrical signals slow down and get weaker. This can cause arrhythmia (irregular heartbeats) or, in very bad situations, cardiac arrest (the heart stopping suddenly)
- Too much potassium (hyperkalaemia) might mess with way nerves deliver messages, which could make you feel tired, tingling, or numb

On the other side, apples, papayas, and guavas have a lot less potassium, which is good for your kidneys. They keep you hydrated, give you antioxidants, and add sweetness without putting too much stress on your body. So, the next time you want a snack, think about whether you're giving your kidneys a job they can handle or making them work extra hard!

Fruits and Vegetables: Which ones to choose?

Fruits and vegetables are an important part of a healthy diet since they are full of vitamins, minerals, and antioxidants. But if you have kidney disease, not all fruits and vegetables are good

for you. Some meals can help your kidneys perform better, while others can make them work harder because they have a lot of potassium, phosphorus, or oxalate. So, how do you choose the right ones? Let's have a look at it!

High-Potassium vs. Low-Potassium Fruits and Vegetables

- High-Potassium Fruits (to be limited or avoided in kidney disease)
 - ✓ Bananas
 - ✓ Oranges and orange juice
 - ✓ Avocados
 - ✓ Melons (Musk Melons, cantaloupe, honeydew)
 - ✓ Dried fruits (raisins, prunes, dates)
- Low-Potassium Fruits (safer choices for kidney health)
 - ✓ Apples
 - ✓ Berries (strawberries, blueberries, raspberries)
 - ✓ Papaya
 - ✓ Guava
- High-Potassium Vegetables (to be limited in kidney disease)
 - ✓ Spinach
 - ✓ Tomatoes
 - ✓ Potatoes
 - ✓ Mushrooms
 - ✓ Brussels sprouts
- Low-Potassium Vegetables (kidney-friendly options)
 - ✓ Cabbage
 - ✓ Cauliflower

- ✓ Bell peppers
- ✓ Green beans
- ✓ Zucchini

Dr. Puru offers a simple and smart tip to help kidney patients choose the right vegetables. He suggests steering clear of brown-coloured root vegetables like potatoes, sweet potatoes, and arbi (taro). The good news? Most other vegetables are perfectly fine to enjoy! When it comes to green leafy vegetables (GLVs), Dr. Puru advises moderation. You shouldn't eat a lot of pastes, gravies, or chutneys, but you can still add modest amounts to things like salads or garnishes for flavour and nutrients. It's all about making good choices and keeping everything in balance! You might attempt a simple trick if you enjoy potatoes, tomatoes, or spinach but are worried about how much potassium they have. If you have renal problems, you can make these vegetables safer by boiling a tiny bit of them in a lot of water. This will lower their potassium levels. This is how it works:

- Boiling these veggies with a lot of potassium helps to get the potassium out of the food and into the water, which lowers the quantity left in the food.
- The more water and time you spend cooking, the more potassium you take out. However, it's necessary to discard the water after cooking to get the full benefit.

Aarav's Citrus Confusion: When even "Healthy" Isn't Right for the Kidneys, Aarav, a 15-year-old school-going boy from Chandigarh, had been struggling with low immunity and allergic bronchitis since he was a toddler. Post years of treatments, his parents, like many well-meaning caregivers, turned to natural remedies and

immune-boosting tips found online. Every day, Aarav's lunchbox had oranges or a glass of lemon water. Vitamin C chewable were added as a routine. "It's just fruits. It can only help, not harm," they believed. But over a few months, Aarav was observed with persistent tiredness, nausea, and swelling around the eyes in the mornings. His appetite decreased and he began missing school often. A blood test was done on advice from their family doctor, and the reports revealed:

Creatinine: 2.1 mg/dL

Urea: 68 mg/dL

eGFR: reduced

Urine test: presence of mild proteinuria

Concerned and confused, his parents consulted Dr. Puru at SRIAAS. After thoroughly reviewing Aarav's history, diet, and lab reports, Dr. Puru gently explained that in CKD patients, even healthy habits must be customized.

"In excess, citrus fruits even can turn into troubles that the kidneys find difficult to manage," said Dr. Puru. "But when kidney function is impaired, these by-products can accumulate in the blood and cause further stress or even inflammation." Aarav's parents were astonished to learn that their good intentions had made his kidneys work harder without them knowing it. Aarav's personalised renal diet plan replaced his citrus intake with safer foods high in antioxidants, gave him clear instructions on how to stay hydrated, and built up a regimen that helped him build immunity without placing too much stress on his kidneys.

Phosphorus and Bone Health in CKD

Anjali's Turning Point: A Wake-Up Call about Phosphorus in Her Diet Anjali, a 38-year-old schoolteacher from Indore, had always considered herself health-conscious. She followed a vegetarian diet, loved yoga, and tried to eat "clean." But for the past few months, something didn't feel right. Her mornings began with fatigue and heaviness in the body, her ankles had started to swell, and she noticed mild breathlessness by evening. At first, she blamed it on her tight schedule and age catching up. But one day, she woke up with severe cramps in her legs, and itching all over her body, especially at night. Worried, she decided to get a full health check-up. When the reports came in, they showed:

Creatinine: 3.9 mg/dL

Urea: 86 mg/dL

eGFR: 21 mL/min

Serum Phosphorus: 6.5 mg/dL (well above the normal range)

Ultrasound: Bilateral enlarged kidneys with multiple cysts—suggestive of Polycystic Kidney Disease (PKD) The diagnosis came as a shock. She had no family history of PKD, and no one had ever warned her that kidney function could silently decline until it was too late. Referred to Dr. Puru at SRIAAS, she began her journey of understanding her body differently. Dr. Puru explained, "In PKD, as the cysts grow, the normal filtering units of the kidneys get compressed, reducing function over time. The buildup of phosphorus is especially dangerous because the kidneys lose the ability to excrete it properly." Anjali had been consuming hidden sources of phosphorus through daily items she believed were healthy—brown breads, packaged protein drinks, flavored yogurts, and even certain types of plant-based

milks. Many of these processed foods used phosphorus-based additives to enhance shelf life and texture. "Too much phosphorus in the blood pulls calcium out of the bones and deposits it in the skin, blood vessels, and joints. That's why you had those cramps and itching," Dr. Puru clarified. With his guidance, Anjali was put on a kidney-safe phosphorus-restricted diet, with:

- Focus on fresh, home-cooked meals
- Low-phosphorus vegetables and fruits
- Avoidance of processed and packaged foods
- Portion control on dairy and pulses

She also began a phosphate binder as advised. Today, Anjali follows a carefully curated lifestyle with regular monitoring. Her symptoms have eased significantly, and though PKD cannot be reversed, its progression has slowed. You must have heard about phosphorus. It is a mineral vital to maintain strong bones and energy production. But here's something that might surprise you: phosphorous can be a bit of a problem when your kidneys aren't operating as well as they should. Let's see what occurs when phosphorous piles up? When the kidneys don't work right, they can't filter out extra phosphorus as well. This can cause a buildup in your blood. And this is when the issues begin:

- **Weak Bones:** If there is too much phosphorus in your blood, it can pull calcium out of your bones, making them weaker. Bones that are weak and brittle are more likely to break.
- **Heart Issues:** Too much phosphorus can potentially hurt the blood arteries that go to your heart. It can induce calcification, which is when calcium builds up in places it shouldn't, like your arteries. This can raise the risk of heart disease, which is a big deal for anyone with renal illness.

Let's talk about the food now! What should you be eating, and what should you be cutting back on? Here's a little guide:

Phosphorus-Rich Foods to Watch Out For

Just like potassium, some foods are rich in phosphorus. When your kidneys aren't working properly, it's crucial to keep an eye on how much of these foods you're eating.

1. Dairy Products: Milk and milk products are great sources of calcium and phosphorus. If you are struggling with a kidney disease, it's a good to limit your intake.

2. Processed Meats: Many processed meats have a lot of phosphorus in them because it is added as a preservative when they are being made.

3. Nuts and Seeds: Almonds, sunflower seeds, and other nuts are full of phosphorus. If you have renal problems, you should limit how many you eat, even if they are good for you in little amounts.

4. Colas: Carbonated soft drinks, especially cola, have a lot of phosphorus in them, which your kidneys may have trouble getting rid of. There are plenty of kidney-friendly alternatives that are lower in phosphorus and will help you get the nutrients you need.

1. Fresh Fruits and Veggies: Apples, berries, bell peppers, and broccoli are all great options. They include a lot of vitamins and minerals but not a lot of phosphorus, which is good for kidney function.

2. Rice and Pasta: Whole grains have more phosphorus than white rice and pasta, thus they can be suitable staples for a diet that is beneficial for the kidneys.

High-Phosphorus Foods (Limit or Avoid if You Have Kidney Disease)

- Broccoli
- Brussels sprouts
- Dried fruits (raisins, dates, apricots)
- Mushrooms
- Potatoes (especially with skin)

Low-Phosphorus Foods (Better for Kidney Health)

- Apples
- Bell peppers
- Berries (strawberries, blueberries, raspberries)
- Cabbage
- Cauliflower
- Cucumber
- Pineapple
- Watermelon
- Zucchini

Calcium in Kidney Disease

Rachit's Unexpected Hurdle: When High Calcium Stopped a Runner's Stride *Rachit, a 21-year-old passionate runner from Pune, lived for his morning sprints and marathon training. A sports science student and fitness enthusiast, he kept a tight regimen—hydrated well, followed a high-protein diet, and consumed calcium and vitamin D supplements regularly to support bone strength and muscle recovery. But over the last two months, things began to feel off. His legs felt heavier, and there were days he couldn't even finish his usual 5K. He brushed it off as fatigue from overtraining. However, what alarmed him more was the persistent nausea, mild abdominal pain, and frequent urination—even at night. His cramps became frequent, and he started to feel mentally foggy. Thinking it was a gastric issue, he visited a local physician who ran a few blood tests. To everyone's surprise, his reports revealed:*

Creatinine: 2.1 mg/dL

eGFR: 48 mL/min

Serum Calcium: 11.2 mg/dL (above the normal range)

PTH (Parathyroid Hormone): suppressed

Urine Calcium (24hr): Elevated

An ultrasound showed mild nephrocalcinosis—tiny calcium deposits in the kidneys. Rachit was referred to Dr. Puru at SRIAAS, where he learned something, he hadn't anticipated. "Rachit, your kidneys are struggling to keep up. Too much calcium—especially from supplements—and your high vitamin D intake might be doing more harm than good," Dr. Puru explained gently. Rachit was diagnosed with early-stage chronic kidney disease (CKD) triggered by hypercalcemia (high blood calcium) and excess calcium excretion. This can lead to calcification of kidney tissues,

impairing their filtering ability. What shocked Rachit most was that all this was happening without any pain, like one would expect from kidney stones. With Dr. Puru's help: His supplements were stopped immediately He was advised a low-calcium, kidney-safe diet Vitamin D was monitored closely, and only given, when necessary, He began hydration therapy and renal support care Three months into the plan, Rachit's parameters improved. His creatinine stabilized, calcium levels normalized, and so did his energy. It's not strange to talk about calcium. We all know that calcium is an important mineral that keeps our bones strong, helps our muscles work, supports nerve functioning, and keeps our hearts healthy. As we get older, our bodies need different amounts of calcium. For instance, kids and teens need more calcium to help their bones grow, but older adults often have difficulties getting enough calcium. That's why many people eat more calcium as they become older or take supplements to make sure they receive enough. But keeping the right amount of calcium in the body might be hard when you have kidney disease. Too much or too little calcium can be quite bad for your health. If you don't get enough calcium, your bones can become weak. On the other hand, if you get too much calcium, it can build up in blood vessels and make it harder for your kidneys to perform. So, what should a person with kidney disease do?

Let's take a closer look at how calcium affects the body and why it's so important to keep it in balance, especially for people who have kidney difficulties.

How the Body Regulates Calcium and What Happens in Kidney Disease? Before we move on, it will be helpful to know how the

operation works in a healthy person. There are three basic ways that the body keeps calcium levels stable:

1. The Intestines: The intestines initially collect calcium from foods including dairy products, leafy greens, and fortified foods and send it into the blood.

2. The Kidneys: The kidneys then filter out extra calcium and keep just the correct amount to keep things in balance.

3. The Bones: When calcium levels in the blood go too low, the bones release calcium that they have stored to keep things operating properly.

The body could have problems retaining a steady quantity of calcium for one of two reasons:

- Too little calcium – leading to weak bones and a higher risk of fractures.
- Too much calcium – which can build up in blood vessels, joints, and even organs, causing serious complications.

So, for people with kidney illness, knowing how this disturbance works is important for keeping calcium levels in check and staying healthy overall.

Why Calcium can be a problem in kidney disease?

Did you know that your kidneys play a crucial role in helping your body absorb calcium? Of course, by reading this book until now, you must be aware of this—but how exactly do they do it? They do this by activating vitamin D, which allows your intestines to absorb calcium from food. But in kidney disease, the kidneys lose their ability to convert vitamin D into its active form. This leads to a chain reaction:

- Less calcium is absorbed from the food you eat.
- Calcium levels in the blood drop (a condition called hypocalcemia).
- Bones start releasing stored calcium to make up for the deficiency.

At first, this may seem like a good backup plan, but over time, it makes bones much weaker. Renal bone disease or chronic kidney disease-mineral and bone disorder (CKD-MBD) is a condition that makes bones weak by taking calcium out of them all the time. This raises the risk of osteoporosis and fractures. You can now think of your bones as a savings account. If you keep taking calcium out of your body without putting it back in, your "bone bank" will run out, which will make you more likely to break bones and get weak. To stop this from happening, it's important to keep calcium levels in check.

2. Calcium & Blood Vessel Calcification Low calcium levels can make bones weaker, but having too much calcium in the blood can be very dangerous, especially for people who have kidney disease. Many kidney patients take calcium-based phosphate binders, medications that help lower phosphorus levels in the body. But when calcium levels get too high, they can react with phosphorus and produce hard deposits in blood vessels and organs. This process is called vascular calcification, and it can have very negative effects:

- Stiff arteries and high blood pressure –Stiff arteries make it harder for the heart to pump blood.
- More likely to have heart disease, heart attacks, and strokes—Blocked blood vessels make heart disease and strokes more likely.

- Calcium buildup in soft tissues – Calcium buildup hurts and makes it hard to move.

You can understand it better if you think of cement being put into water pipes. Water still flows at initially, but with time, the pipes develop stiff and clogged, making it practically impossible for water to flow through them. Too much calcium in the arteries accomplishes just that: it stops blood from flowing and makes the heart work harder. This is why it's so crucial to keep an eye on your calcium levels. Too little makes bones weaker, while too much could harm the heart and blood vessels. So, how can people with kidney difficulties protect their calcium levels from getting too high? Let's talk about the best

Calcium & Kidney Stones

People with chronic kidney disease (CKD) need to maintain their calcium levels in check for more than just their bones and blood vessels. It can also help protect kidney stones from developing. When calcium levels are excessively high, they can stick to oxalates, which are found in foods like spinach, almonds, and chocolate. This can cause kidney stones to form. These stones can induce severe pain (renal colic), which is commonly thought to be one of the worst feelings a person can feel:

- Severe pain (renal colic) – often described as one of the worst pains a person can experience.
- Urinary blockages – making it difficult for urine to pass.
- Further kidney damage – worsening kidney function over time.

Not all people with CKD are at risk for kidney stones, but those who have had stones before may need to keep a close eye on how much calcium and oxalate they eat to avoid problems. It can

be hard to keep calcium levels in check, and for those with CKD, it's important to discover the best way to do it. So, what can be done to keep calcium levels healthy without raising the risks? Let's look more closely at several useful ways to better manage calcium.

How to Maintain the Right Calcium Balance in Kidney Disease?

Finding the appropriate balance is important since kidney illness makes it hard to control calcium levels. Here is how people with CKD can keep their calcium levels good without taking further risks: Avoid calcium-based phosphate binders, if advised – Some people with renal problems are told to take these drugs, but if your doctor suggests something else, do what they say. Choose safe calcium sources – Choose dairy products, green vegetables (save for high-oxalate ones like spinach), and fortified meals that are low in phosphorus to get calcium without receiving too much phosphorus. Follow a balanced calcium intake – don't go overboard or underboard; both might cause difficulties. So, it's always a good idea to talk to your doctor about how much calcium you should be getting. Monitor phosphorus intake – Too much phosphorus can take calcium out of bones, which makes them weaker. So, to keep things in balance, you should cut out on processed foods, drinks, and dairy products that are high in phosphorus Take vitamin D supplements (if prescribed)- If you have kidney disease, you may need to take supplements to help your body absorb calcium better. This is because kidney disease makes it difficult for vitamin D to work. Kidney sufferers can protect their bones, heart, and health in general by carefully

monitoring how much calcium they eat. The most essential thing is to pay attention, listen to your doctor, and make sure that calcium grows the body without injuring it.

Sodium and Blood Pressure Control in Kidney Disease

A Quiet Alarm: How a School Van Driver Uncovered Hidden Kidney Trouble Raghbir Singh, a 54-year-old school van driver from Meerut, was always on the go. Every morning before the sun came up, he would get his van ready, pick up cheerful kids, and drop them off safely. Raghbir was usually on time and had a beautiful smile. He never thought that his body might be hiding something hazardous. Over the past few months though, he began noticing a few troubling signs—puffiness around his eyes, occasional swelling in his feet, and random headaches during his afternoon nap. His probable thoughts were tiredness from driving in the heat. But what really made him take things seriously was a sudden episode of dizziness and blurred vision while driving. His blood pressure fluctuated drastically during check-ups—270/150 one day, 100/60 the next. Concerned, his local doctor suggested he get a full health check-up done. His blood reports showed:

- Serum Sodium: 130 mmol/L (low)
- Serum Creatinine: 2.1 mg/dL
- eGFR: 38 mL/min
- Blood Pressure: Irregular pattern
- Mild protein traces in urine

Raghbir Think of table salt—the tiny white crystals we sprinkle on our food to enhance flavor. Salt is a common ingredient in the kitchen, but did you know that it does more than just make food taste better? Yes, it is made up of sodium and chloride. Sodium is important for keeping fluid balance, nerve function, and blood

pressure in check, but too much of it can throw things off. For most people, a little additional salt might only make them feel satisfied or thirsty. But for patients with chronic kidney disease (CKD), a little extra sodium can cause major problems like oedema, elevated blood pressure, and stress on the kidneys¹⁰. So, how much is too much, and what can people with CKD do to control how much sodium they eat? Let's speak about it here. When the kidneys are healthy, they help keep the body's sodium levels in check by getting rid of surplus salt. But when you have CKD, your kidneys have difficulties getting rid of salt, which can make your legs, ankles, and hands swell because they hold onto water:

- Fluid retention – causing swelling in the legs, ankles, and hands.
- High blood pressure (hypertension) – raises the risk of heart disease and more damage to the kidneys.
- Shortness of breath – yes, shortness of breath is linked to kidney problem. It occurs due to fluid buildup in the lungs.

Since sodium directly affects blood pressure and kidney function, managing intake is crucial. So, what does salt do to the kidneys, and what can people with CKD do to keep their levels in check? Let's look at this more.

Effects of High Sodium Intake on Kidneys

Did you know that your favourite snacks like chips, pickles, canned soups, and processed meats are loaded with hidden salt? Yes, they do. You should always check the labels of the food you

¹⁰ F. B. Nerbass et al., "High Sodium Intake Is Associated with Important Risk Factors in a Large Cohort of Chronic Kidney Disease Patients," *European Journal of Clinical Nutrition* 69, no. 7 (July 2, 2015): 786–90, <https://doi.org/10.1038/ejcn.2014.215>.

consume. We frequently think that table salt is the main source of sodium, but there are numerous more ways it gets into our diets. If you eat too much sodium, your body will try to balance it out by holding onto more water. At first, it might not seem like a big concern, but over time, this additional fluid puts a lot of stress on your kidneys. Then you have to deal with the effects: elevated blood pressure, swollen hands and feet, and a greater chance of kidney damage. So, the next time you want a salty snack, think about how hard your kidneys are working to keep up.

This can lead to:

Increased fluid retention – causing swelling in the feet, ankles, and hands.

Higher blood pressure – forcing your heart and kidneys to work harder.

Worsening kidney function – as damaged kidneys struggle to remove excess salt and fluid.

Shortness of breath – due to fluid buildup in the lungs.

Think of your kidneys as a filter for water. When too much salt comes into the system, the filter gets too full and clogged, which makes it harder for it to do its job. Cutting back on the amount of sodium you eat is one of the best things you can do for your kidneys.

So, how can people with CKD cut back on salt without losing taste? Eating less salt can help people with CKD protect their kidneys, avoid problems, and reduce the disease's progress. Let's talk about some helpful advice... The first thing that springs to mind is: How much sodium is okay to eat? For most people with kidney concerns, sticking to less than 2,300 mg per day

(about one teaspoon of salt) is the goal. But if you have advanced kidney disease or high blood pressure, you might need to lower it even more to 1,500 mg per day. Now, you might be wondering, how can I cut down on salt without making my food taste bland? Don't worry, you just keep reading...

Where's all that extra Sodium hiding?

Before you even touch the saltshaker, there are chances that you are already eating too much sodium. It sneaks into your diet through foods you might not even suspect! Let's take a quick look:

Foods that pack a sodium punch:

- Processed and packaged snacks (think chips, instant noodles, frozen meals)
- Fast foods (burgers, pizzas, fries—yep, all the favorites)
- Canned soups, sauces, and broths
- Pickles, cured meats, and salted nuts

So, it's time to say goodbye to these high-sodium foods! But don't worry—it's not all bad news. There are plenty of delicious, low-sodium alternatives that will still satisfy your taste buds.

There are some smart swaps for a low-sodium diet:

- Fresh or frozen fruits and vegetables (they're naturally low in sodium and full of nutrients)
- Homemade meals instead of packaged ones—because you control the ingredients!
- Homemade soups & sauces with natural herbs instead of store-bought versions

Look for "low-sodium" or "no-salt-added" labels when buying canned products and if you can then rinse them to remove extra salt.

By making these swaps, you'll start feeling better, managing your blood pressure, and protecting your kidneys. This will all happen without giving up tasty meals! But how does it taste? Let's talk about some tricks that will change the game and make your food taste nice without adding salt.

You might be wondering, "How will my food taste good without salt?" We get it. A diet reduced in sodium could sound boring or bland, so let's put that idea to bed once and for all.

In the kitchen, spices, herbs, and citrus tastes are your new best friends. They not only take the place of salt, but they also make your food taste better!

Try these flavour boosters:

- Lemon juice – Adds a fresh, tangy kick that can liven up any dish.
- Garlic & onion – The dynamic duo for deep, savoury richness.
- Basil, oregano, cumin, turmeric, and black pepper – These aren't just seasonings, they're flavor superheroes!

Still curious for more smart tips?

Well, here's another one: Rinse your canned foods before using them to reduce sodium. Cooking from scratch also puts you in full control of your salt intake. And when you're shopping, flip that package around and check the label—anything with less than 140 mg of sodium per serving is generally considered a safer choice.

But what if you're someone who loves eating out?

No worries! Just speak up—ask for less salt while ordering. Choose steamed, grilled, or baked options over fried dishes, and you'll be doing your kidneys (and your heart!) a big favour. In the end, it's all about making little, conscious changes. These modifications are good for your kidneys and your heart, and they can also help you keep your blood pressure in check and give you more energy all day long.

SECTION FOUR

Choosing Kidney-Friendly Grains and Legumes

Can you picture an Indian dinner that doesn't have grains and beans? They are the most significant part of our daily diet since they give us energy, fiber, and other important nutrients. But it's really important to pick the right grains and legumes if you have kidney problems. Whole grains, including brown rice and whole wheat, are high in fiber and minerals, but they also have more potassium and phosphorus. It can be challenging to keep track of these minerals when your kidneys aren't working effectively. On the other hand, refined grains like white rice and white bread have less fiber and phosphorus, which makes them safer in specific scenarios. But that doesn't mean you should consume a lot of carbs that have been processed! So, the best thing to do is to eat what works for you. Talk to your doctor about the best mix for you. After all, eating well for your kidneys doesn't mean giving up on delicious and comforting meals. The best way is just making smarter choices!

Should You Avoid Whole Grains Completely?

Not necessarily! It's all about portion control and moderation—you don't have to leave whole grains completely. But if your kidney function is declining, it's worth considering how much work you're giving your kidneys with every bite. Do you also wonder why doctors often recommend switching to refined grains like white rice, white bread, and pasta in the later stages of kidney disease? It is because these grains have less phosphorus and potassium, making them easier for weakened kidneys to handle. The refining process removes the bran and germ—reducing fiber and some nutrients—but also lowering phosphorus and potassium levels, which is exactly what kidney

patients need. When you have to choose between brown rice and white rice or quinoa and pasta, think about what is better for your kidneys. If you're already having trouble, picking a grain that is good for your kidneys could be the greatest approach to keep your body working well without adding more stress.

1. Examples of Whole Grains (Higher in Phosphorus & Potassium):

- Brown rice
- Whole wheat bread
- Oats
- Quinoa
- Barley
- Millet

2. Refined Grains (Lower in Phosphorus & Potassium)

- White rice
- White bread
- Pasta
- Cornflakes
- Rice noodles

Tip: If whole grains are preferred, portion control and proper cooking methods (like boiling) can help reduce phosphorus levels.

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